

AL2.2002-169

NO ILL

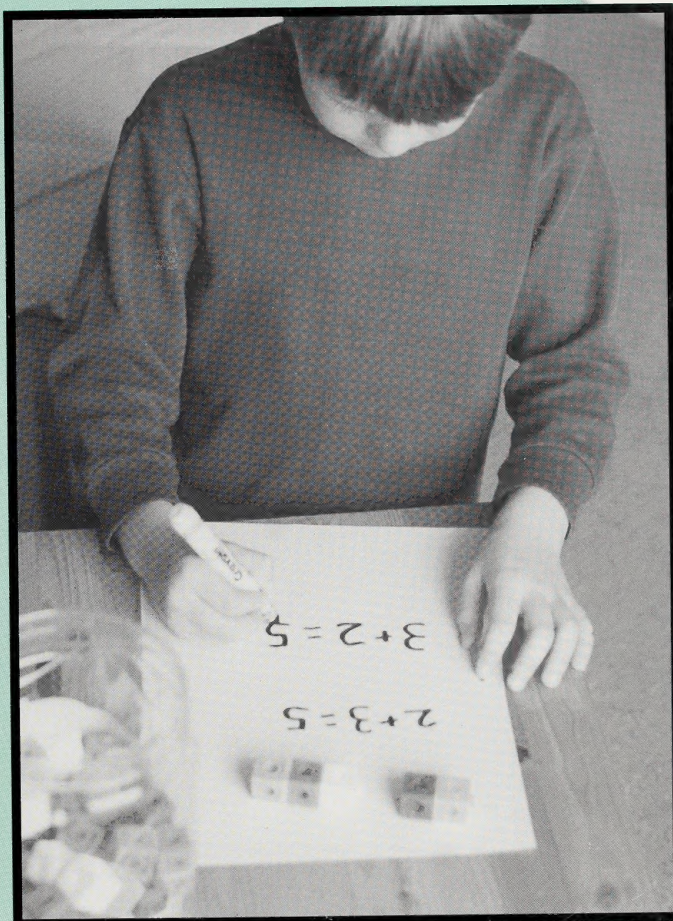
University of Alberta Library



0 1620 3452281 1

Grade 2

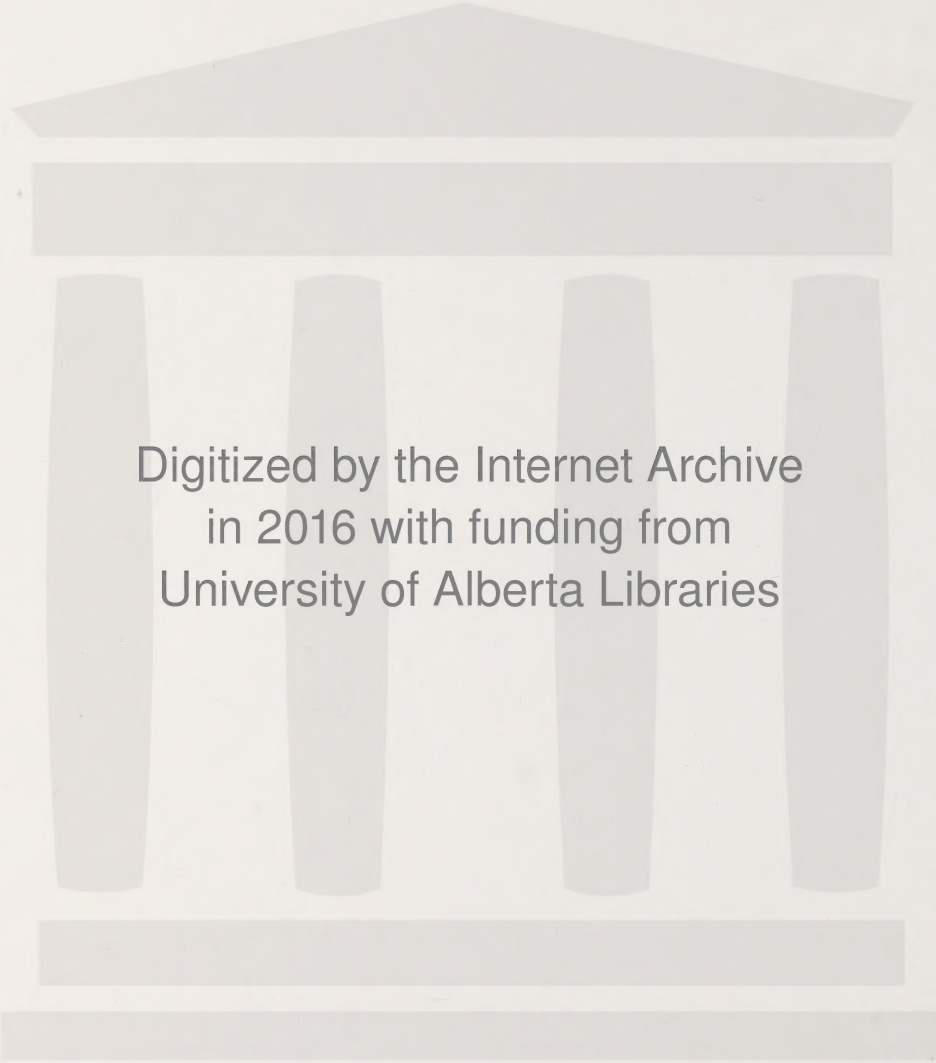
Mathematics



Module 2



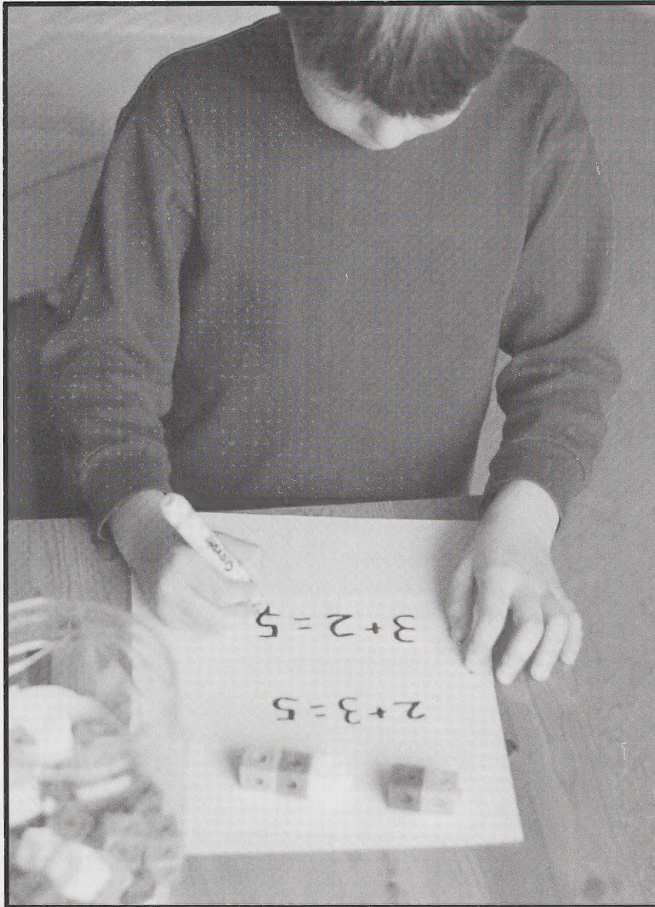
Distance
Learning



Digitized by the Internet Archive
in 2016 with funding from
University of Alberta Libraries

Mathematics

Module 2



This product is the result of a joint venture with the following contributors:



Alberta Learning
11160 Jasper Avenue
Edmonton, Alberta, Canada T5K 0L2
Internet: <http://www.learning.gov.ab.ca/>



Ministry of Education
Province of British Columbia
Victoria, British Columbia, Canada V8W 1X4
Internet: <http://www.bced.gov.bc.ca>



Learning Technologies Branch
Box 4000
Barrhead, Alberta, Canada T7N 1P4
Tel: (780) 674-5350, Fax: (780) 674-6561
Internet: <http://www.learning.gov.ab.ca/ltb>



Open School
Open Learning Agency
1117 Wharf Street, 2nd Floor
Victoria, British Columbia, Canada V8W 1T7
Internet: <http://www.openschool.bc.ca/>



Alberta Distance Learning Centre
Box 4000
Barrhead, Alberta, Canada T7N 1P4
Tel: (780) 674-5333, Fax: (780) 674-6977
Internet: <http://www.adlc.ab.ca>



Learning Resources Distributing Centre
12360 – 142 Street
Edmonton, Alberta, Canada T5L 4X9
Tel: (780) 427-2767, Fax: (780) 422-9750
Internet: <http://www.lrdc.edc.gov.ab.ca>

Grade One Mathematics
Module 2
Student Module Booklet
Learning Technologies Branch
ISBN 0-7741-1753-2

This document is intended for	
Students	✓
Teachers	✓
Administrators	
Home Instructors	✓
General Public	
Other	



The Learning Technologies Branch has an Internet site that you may find useful. The address is as follows:

<http://www.learning.gov.ab.ca/ltb>

The use of the Internet is optional. Exploring the electronic information superhighway can be educational and entertaining. However, be aware that these computer networks are not censored. Students may unintentionally or purposely find articles on the Internet that may be offensive or inappropriate. As well, the sources of information are not always cited and the content may not be accurate. Therefore, students may wish to confirm facts with a second source.

ALL RIGHTS RESERVED

Copyright © 2000, the Crown in Right of Alberta, as represented by the Minister of Learning, Alberta Learning, 11160 Jasper Avenue, Edmonton, Alberta T5K 0L2. All rights reserved. Additional copies may be obtained from the Learning Resources Distributing Centre.

No part of this courseware may be reproduced in any form, including photocopying (unless otherwise indicated), without the written permission of Alberta Learning.

Every effort has been made both to provide proper acknowledgement of the original source and to comply with copyright law. If cases are identified where this effort has been unsuccessful, please notify Alberta Learning so that appropriate corrective action can be taken.

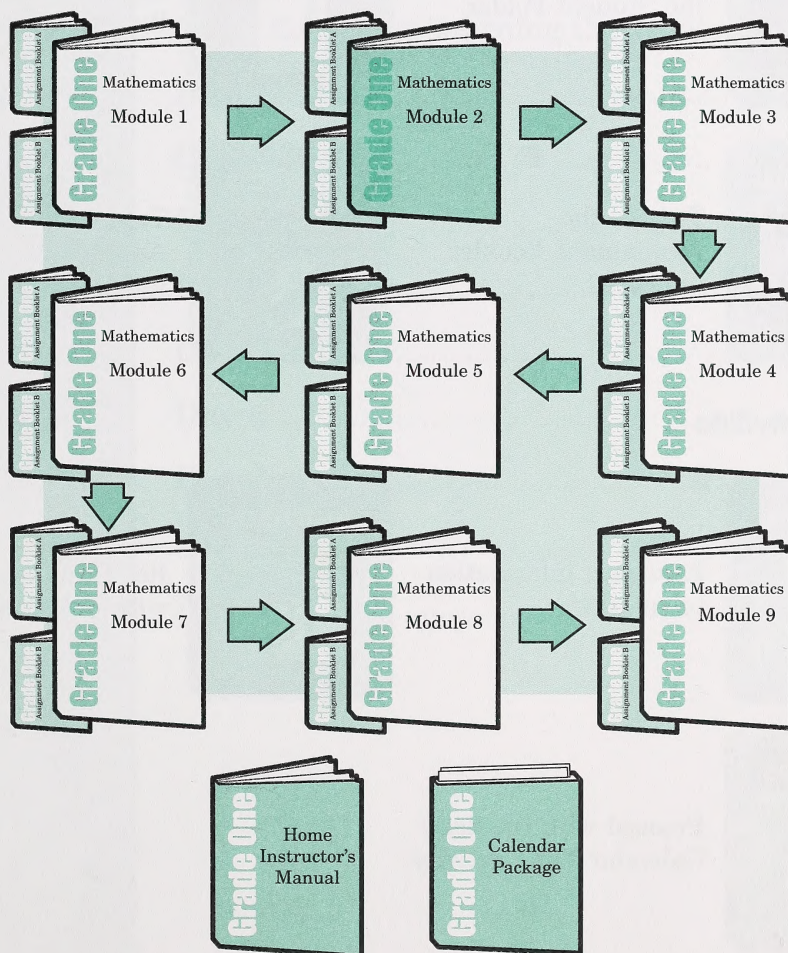
IT IS STRICTLY PROHIBITED TO COPY ANY PART OF THESE MATERIALS UNDER THE TERMS OF A LICENCE FROM A COLLECTIVE OR A LICENSING BODY.

Course Overview and Basic Components

Welcome to the Grade One Mathematics program.

The booklet you are presently reading is called a Student Module Booklet. It will take you through the course and show you, step by step, what to do with the student and how to do it. The activities you do will prepare the student for the assignments.

Grade One Mathematics contains nine modules. Each module has two Assignment Booklets. The module you are working on is highlighted in a darker colour. The two other basic course components—a Home Instructor's Manual and a Calendar Package—are also highlighted.



Visual Cues

Throughout the Grade One Mathematics program, you will find visual cues that indicate a material needed or an activity to carry out. Read the following explanations to discover what each icon prompts you to do.

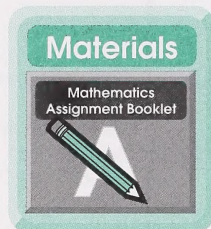
Icons: Materials



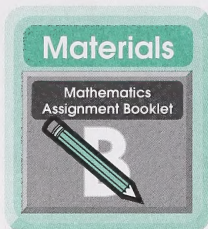
Place an item in the Student Folder.



Turn to the Home Instructor's Manual for further information.



Turn to the Assignment Booklet indicated.

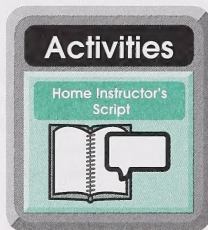


Turn to the Assignment Booklet indicated.

Icons: Activities



Read this information to yourself.



Read this information with the student.



Proceed with the daily Calendar Time activity.

Contents



Mathematics Module 2 Overview	1
Module Web Chart	2
Mathematics Module Submissions	3
Calendar Time	3
Additional Resources	4
Home Schooling: Teaching the Whole Child	6
Day 1	7
Day 2	21
Day 3	33
Day 4	43
Day 5	51
Day 6	61
Day 7	77
Day 8	95
Day 9	105



Day 10	115
Day 11	125
Day 12	135
Day 13	141
Day 14	153
Day 15	161
Day 16	173
Day 17	181
Day 18	189
Credits	195

Mathematics

Module 2 Overview

Welcome to Grade One Mathematics Module 2.

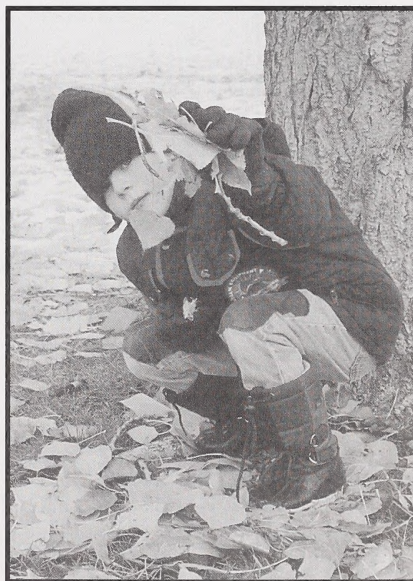
Children are born with a strong urge to explore their environment. During the pre-school years, children's learning is generally spontaneous and unstructured. Most children do, nevertheless, gain considerable mathematical understanding related to number sense, spatial sense, and problem solving. The concepts and understandings that young children bring to formal schooling have been developed largely through the natural context of their lives. That context might be sharing candy with a friend or shopping at the grocery store with the family.

Even though your student is now in a more structured program, it is still important to foster natural and meaningful experiences in mathematics. New concepts will be better understood, remembered, and applied when connected to daily life. The goal of this program is to provide you and your student with practical and hands-on activities. Through these activities, the child's understanding of mathematics will be extended.

Each day's lesson has four main elements. All four are important parts of the program.

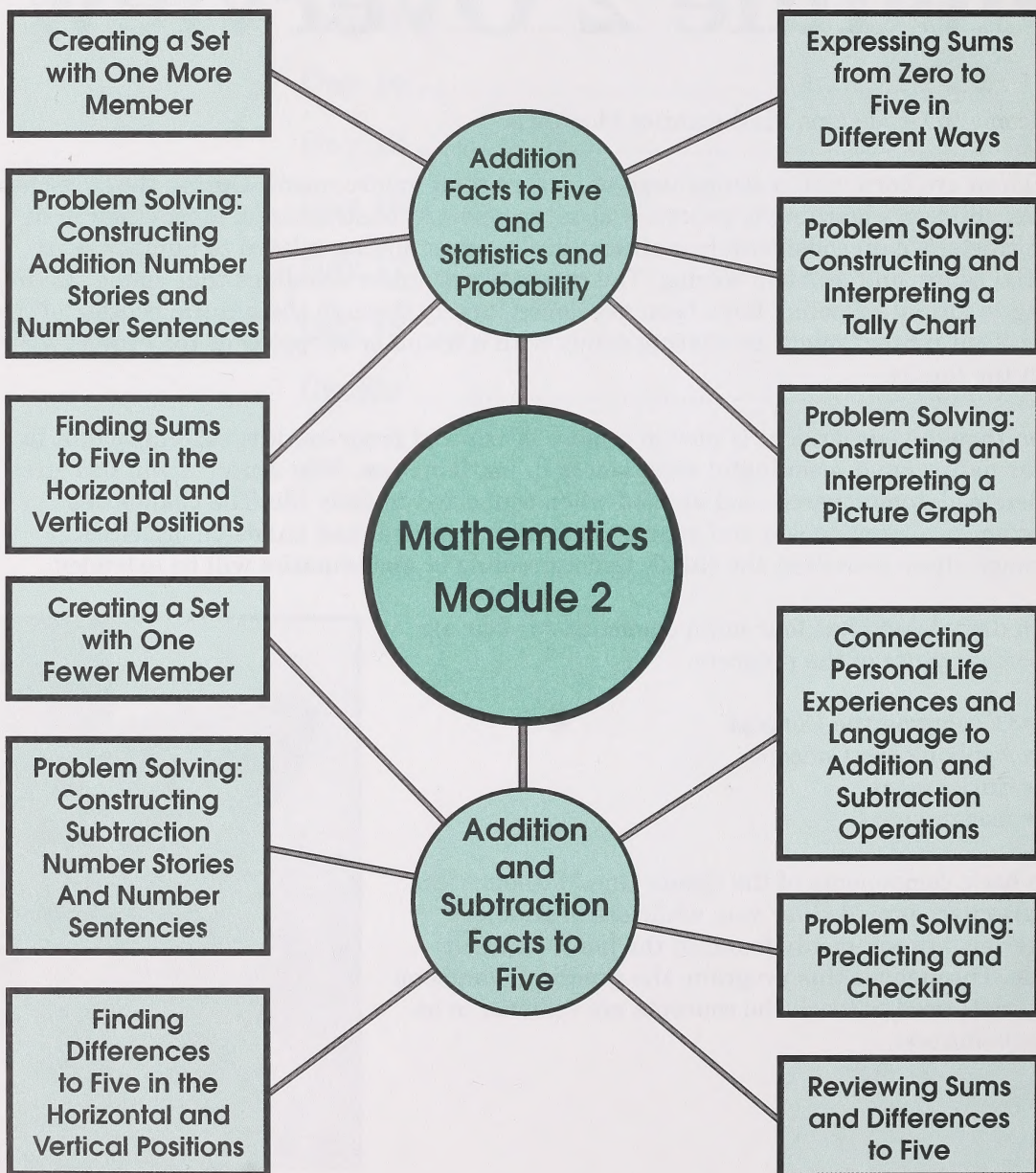
- Developing the Concept
- Applying the Concept
- Enrichment
- Assignments

The basic components of the Grade One Mathematics program are provided for you, while other practical materials are commonly found in the home or easily made. Throughout this program, the practical, hands-on materials used to teach the concepts are referred to as *manipulatives*.

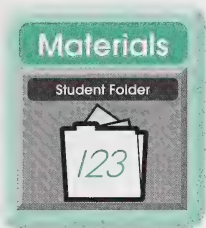


Module Web Chart

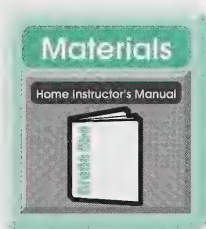
This chart highlights the main mathematical topics for this module.



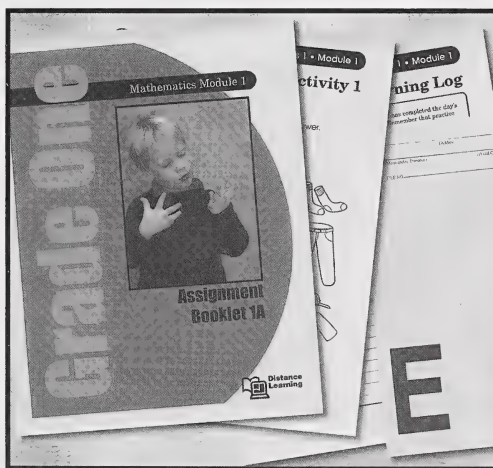
Mathematics Module Submissions



Place completed items in the Student Folder when you see this icon. On Day 9 and Day 18 of each module, you will find a checklist in the Assignment Booklet to help you compile items for submission to the child's teacher. The teacher will let you know when to provide these items for marking.



Note: The Student Folder is not included with the basic course components. Refer to the Home Instructor's Manual for information on the Student Folder.



Calendar Time



Many essential concepts are learned through the calendar activities that begin each lesson. If your student is not enrolled in the accompanying Grade One Thematic program, refer to the Calendar Package for information, activities, and resources.

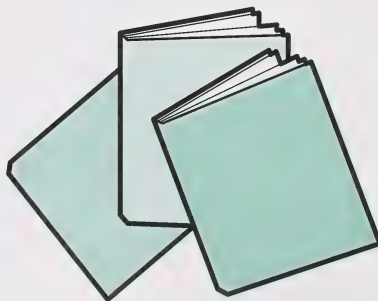
Additional Resources

The basic mathematics resources that the student needs for this module are provided. You could extend these basic resources with additional ones from a public or school library. Listed below are concept-related books, songs, and rhymes that could enrich this module. A trip to the library in search of these resources may be a delightful beginning to your module. In addition, you could investigate the many games and computer programs on the market that may enhance your student's learning opportunities.

Addition and Subtraction Concept Resources

Books

- Adam, P. *There Was an Old Lady Who Swallowed a Fly*. 1973.
- Adam, P. *There Were Ten in the Bed*. 1979.
- Bang, M. *Ten, Nine, Eight*. 1984.
- Becker, J. *Seven Little Rabbits*. 1988.
- Bogart, J.E. *Ten for Dinner*. 1989.
- Buckley, R. *The Greedy Python*. 1985.
- Byer, C. *Henny Penny*. 1981.
- Carle, E. *Rooster's Off to See the World*. 1987.
- Christelow, E. *Five Little Monkeys Jumping on the Bed*. 1989.
- Crowther, R. *The Most Amazing Hide and Seek Counting Book*. 1981.
- Demarest, C.L. *No Peas for Nellie*. 1988.
- Demi. *Demi's Count the Animals One-Two-Three*. 1986.
- DePaulo, T. *Pancakes for Breakfast*. 1978.
- Duke, K. *Seven Froggies Went to School*. 1985.
- Engel, D. *Josephina, the Great Collector*. 1988.
- Gackenbach, D. *A Bag Full of Pups*. 1983.
- Galdone, P. *Henny Penny*. 1984.
- Geringer, L. *Three Hat Day*. 1985.
- Gilman, P. *The Wonderful Pigs of Jillian Jiggs*. 1988.
- Hawkins, C. *Adding Animals*. 1983.
- Hooper, M. *Seven Eggs*. 1985.
- Hoguet, S.R. *I Unpacked My Grandmother's Trunk*. 1983.
- James, S. *The Day Jake Vacuumed*. 1989.
- King, P. *The Hungry Cat*. 1986.
- Leedy, L. *A Number of Dragons*. 1985.
- Mack, S. *Ten Bears in My Bed: A Goodnight Countdown*. 1974.
- Mayer, M. *Hiccup*. 1976.
- Noble, T.H. *The Day Jimmy's Boa Ate the Wash*. 1980.
- Rees, Mary. *Ten in Bed*. 1988.
- Sheppard, J. *The Right Number of Elephants*. 1990.
- Sis, P. *Going Up!* 1989.
- Tolstoi, A. *The Great Big Enormous Turnip*. 1968.
- Wadsworth, O.A. *Over in the Meadow*. 1985.
- Wahl, J., and S. Wahl. *I Can Count the Petals of a Flower*. 1985.
- Walsh, E.S. *Mouse Count*. 1991.
- West, Colin. *Ten Little Crocodiles*. 1988.
- Zolotow, C. *One Step, Two...* 1981.

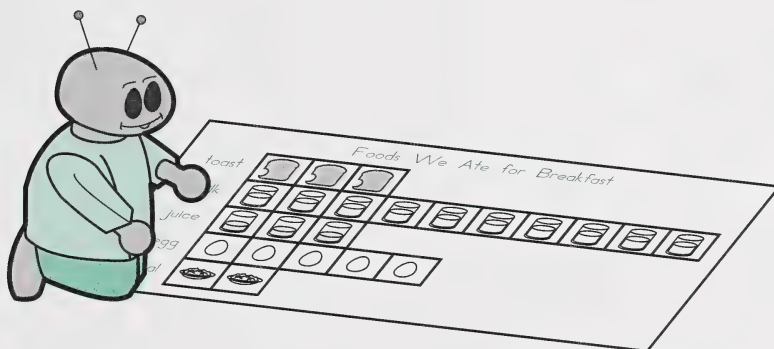


Statistics and Probability Concept Resources

Books

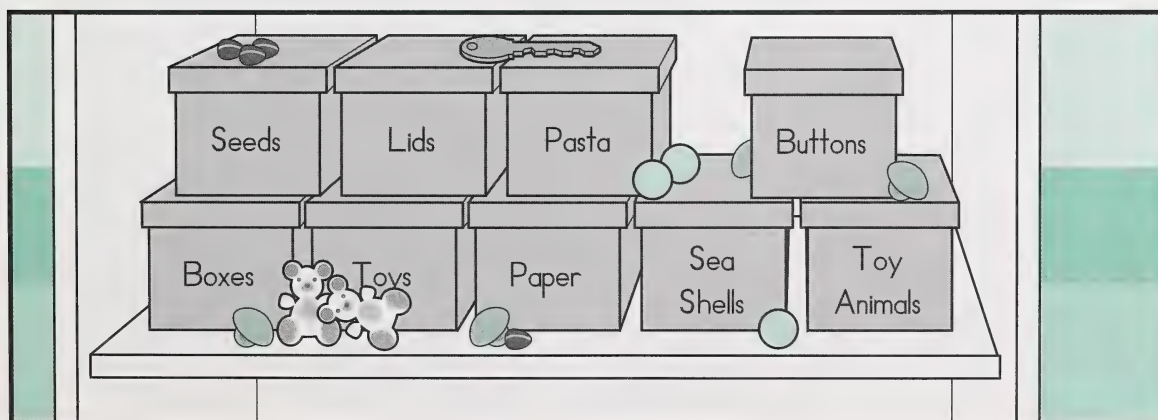
Anno, Mitsumasa. *Anno's Faces*. 1989.
Bemelmans, Ludwig. *Madeline*. 1985.
Ehlert, Lois. *Eating the Alphabet*. 1989.
Hoban, Tana. *Is It Red? Is It Yellow? Is It Blue?* 1978.
Kovalski, Maryann. *The Wheels on the Bus*. 1987.
Kroll, Steven. *That Makes Me Mad*. 1976.
Lobel, Arnold. "The Lost Button" in *Frog and Toad Are Friends*. 1979.

Macmillan Child Group. *The Sesame Street Songbook: Sixty Favorite Songs*. 1992.
Oxenbury, Helen. *Numbers of Things*. 1987.
Parker, Nancy Winslow, and Joan Richards Wright. *Frogs, Toads, Lizards, and Salamanders*. 1990.
Rahn, Joan. *Holes*. 1984.
Reid, Margaret S. *The Button Box*. 1989.
Simon, Norma. *All Kinds of Families*. 1976.



To further develop the practical application of mathematical concepts, you are encouraged to let your child help you in the collection of manipulative material such as cutlery, clothespins, money, and miniature toy animals.

Addition and Subtraction Concept Manipulatives

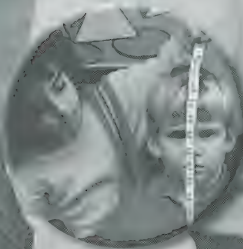




Social



Physical



Intellectual



Creative



Emotional

Home Schooling: Teaching the Whole Child

Day 1

Activities

Calendar Time



Calendar Time

Time recommended: 10 minutes

If your student is enrolled in the accompanying Grade One Thematic program, you will already have completed Day 1, Calendar Time before turning to this Mathematics Module 1 booklet. In that case, proceed directly with the remainder of Math Time.

If your student is not enrolled in the accompanying Thematic program, then refer to the Calendar Package for further information before proceeding with today's lesson.

Focus for Today

Time recommended: 45 minutes

- identifying and building a set with one more member
- constructing a number story and number sentence



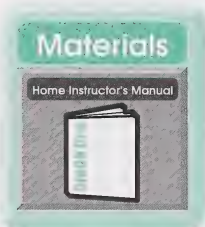
Vocabulary (spoken only)

Look for the following words throughout today's lesson. These words are usually used in context and, if introduced to the student, are spoken only, so it is not necessary to review the list with the child. Students at this level are not required to read, spell, or write these words, with the exception of the number words from zero to ten.

addition	circle	play
increase	member	subtraction
quantity	set	statistics and probability
number stories	equals sign	statistics
number sentences	equal	probability
how many	both sides	dialogue
first	same value	beside
added	addition sign	between
total	dialogue	sum
join	scene	plus
adding	stage directions	pair

Materials Required

Certain materials are required on a regular basis throughout the Grade One program. These are the basic school supplies, such as pencils, paper, glue, and scissors. If you have not already prepared a box containing these materials, then do so now.



See the Home Instructor's Manual for further information on the Master List of Required Materials.

- box containing required materials from the master list
- collections of counters, for example, shells, small toys, buttons, pasta, coins, keys, and pebbles
- approximately 100 centimetres of string or yarn
- resource book about addition (optional)
- cardboard rolls and wooden craft sticks (optional)
- toys to use as play props (optional)

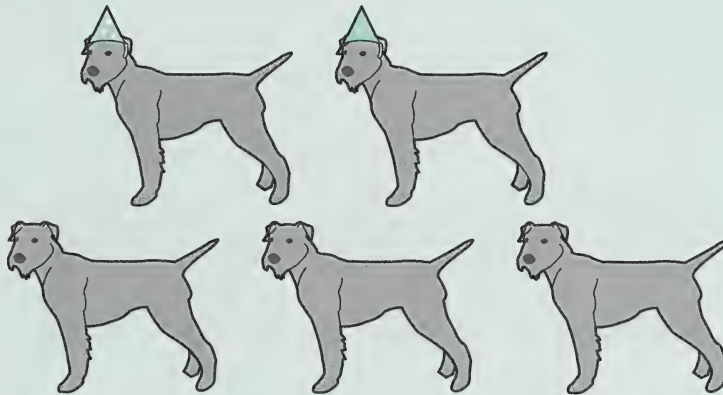
Activities

Teaching Tip



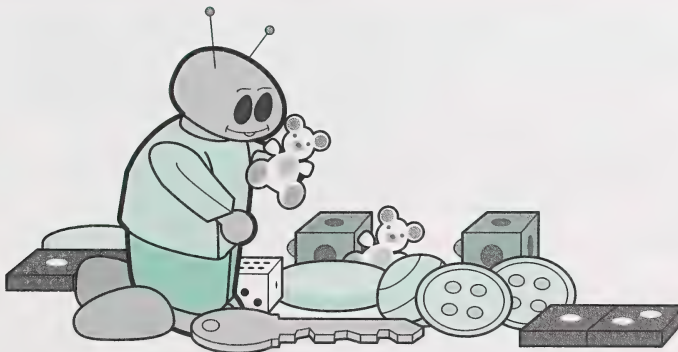
Today, your student will begin the concept of **addition**. Involvement in interesting activities that join groups of objects will develop the child's understanding that combining **increases the quantity** of objects. An example follows.

There are 2 dogs wearing hats and 3 dogs not wearing hats. How many dogs are there in total?



You can create several **number stories** and **number sentences** from the same set of objects. Encourage your student to use the same objects in a variety of ways and to create stories that reflect that variety. For example, you could also say the following about the picture above:

There were 2 dogs playing at the park, and 3 more dogs came to join them. How many dogs were playing at the park in total?



Developing the Concept

Read the following rhyme with your student.

Hey Diddle, Diddle

Hey diddle, diddle,

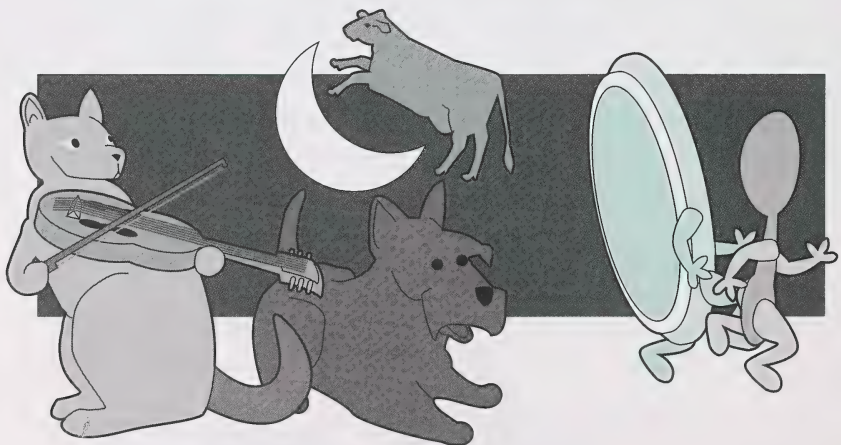
The cat and the fiddle,

The cow jumped over the moon.

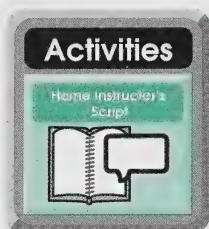
The little dog laughed

To see such sport,

And the dish ran away with the spoon.



Ask the following questions about the pictures on the rhyme page.

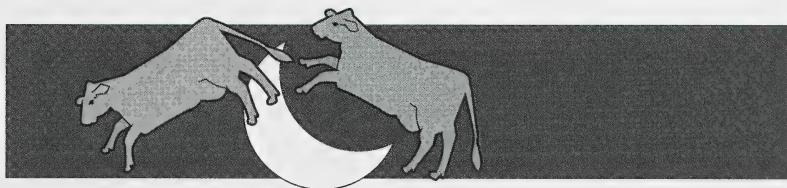


How many animals are in the picture? (3)

Point to some things in the picture, and say what they are. (moon, dog, cow, ...)

What funny or strange things do you see in the picture?

If 1 more cow joined the **first** cow, how many cows would there be? (2)



When 1 thing is **added** to 1 other thing, there are 2 things.

If 1 more animal is added to the picture, how many animals are there in **total**? (4)



When you **join** things together and find out how many, you are **adding**.

Activities

Teaching Tip



In the next activity, chant the following or sing it to the tune of "Here We Go 'Round the Mulberry Bush."

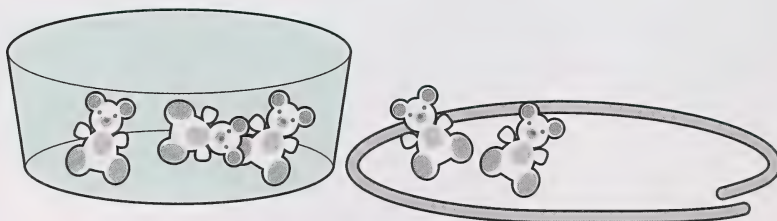
**Place two bears in the circle,
in the circle, in the circle.
Place two bears in the circle,
Two, two bears in the circle.**

**Place one more bear in the circle,
in the circle, in the circle.
Place one more bear in the circle,
Three, three bears in the circle.**

These words refer to bears and circles, but you can substitute other counters and shapes to suit what you have.

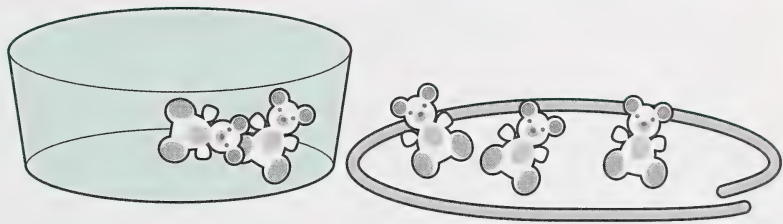
Place a container of small objects and a circle of string in front of the student. Continue the script.

Choose 2 objects from the container, and place them inside the **circle**.



Add 1 more object to the circle, or **set**.

How many objects are in the circle now? (3)



Add 1 more object, or **member**, to the circle.

How many members are in the circle set? (4)

How could you make this a set of 5 members?
(Add 1 more.)

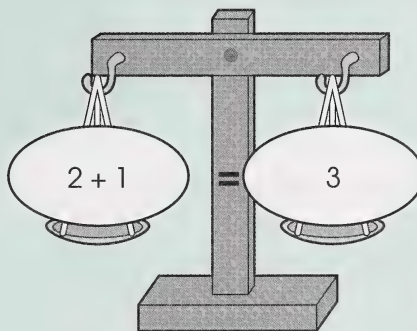
Show how to make this a set of 5 members.

Activities

Teaching Tip



While involved in the next two activities, review that the word **equal** and the **equals sign** (=) both mean that the numbers on **both sides** of the equals sign have the **same value**.



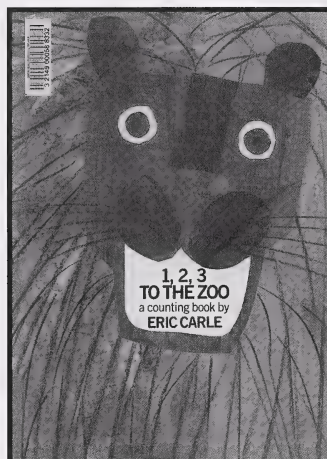
Also point out that the **addition sign** (+) shows that two sets of objects are being **added**, or joined together.



Applying the Concept

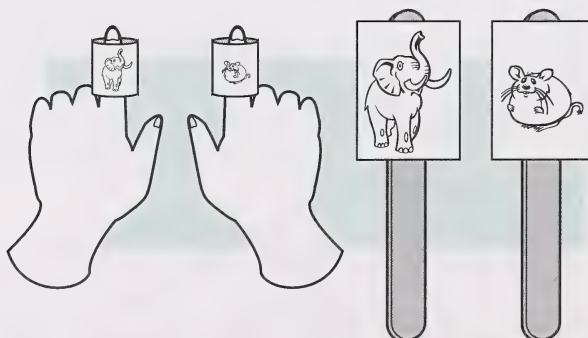
Mention that a **play** is a story that is acted out. Then perform a puppet play that illustrates a joining, or adding, action. The student could make up a play or create one from a book about addition.

For suggested book titles, see the list of Additional Resources at the beginning of this module. Note that these books are not all about **addition**; some are about **subtraction** or **statistics and probability**, so choose books accordingly. One book that would make a suitable play is *1, 2, 3 to the Zoo: A Counting Book* by Eric Carle.

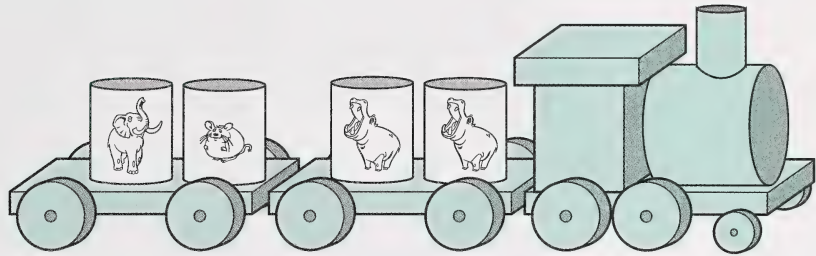


Number Play

Step 1: Make simple puppets for your characters, such as an engineer and animals for a play based on Eric Carle's book.



The student could also use props, such as a toy train.



dialogue: conversation between characters in a play

scene: a part of an act in a play

Step 2: Create and act out **dialogue** to match the number stories for each **scene** of the play. For example, using Eric Carle's story, the dialogue might be as follows.

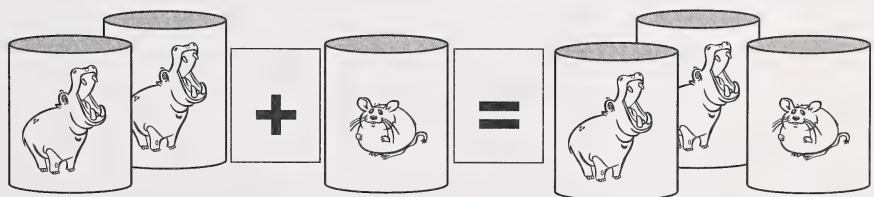
(The elephant was surprised to see a mouse in his train car.)

Elephant: How did you get here?

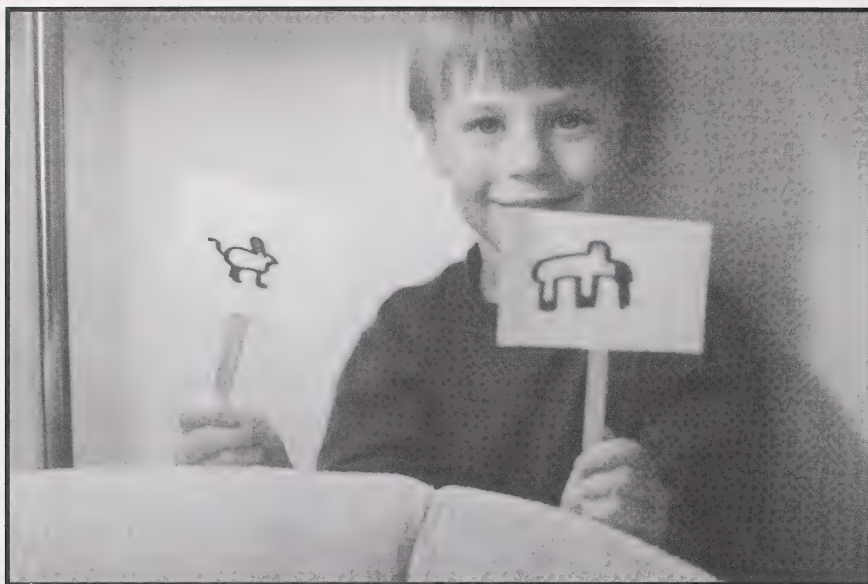
Mouse: I came on last night before you came on board, and I fell asleep under the straw.

Stage directions are often placed in parentheses so they look different from the words the characters speak.

Step 3: Print a number sentence about the characters for each scene of your play. Continuing with the Eric Carle book for the second scene, the dialogue would be between two hippopotamuses and a mouse. The number sentence would be as follows.



$$2 + 1 = 3$$



Take turns reading from the book and acting out number stories.

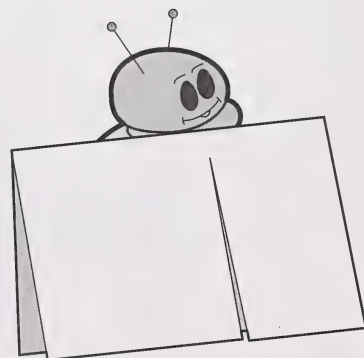
Enrichment (optional)

Enrichment activities are always optional. If you think at this point that the student needs extra help or a challenge, you could postpone the final assignment and Learning Log until after this activity.

Note: Use of optional activities may require you to pace the student's progress in the rest of the module to accommodate special needs. For example, you may delay the final assignment until the student is ready for it. In that case, review the day's work before your student does the assignment.

Peek-a-Boo Booklet

Number stories can be fun when you show them in a Peek-a-Boo booklet. The following steps will guide you.



Step 1: Collect an unlined sheet of loose-leaf paper, a pair of safety scissors, a pencil, and crayons.

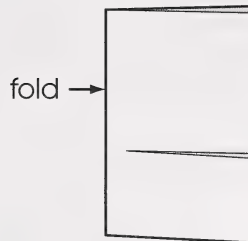
Step 2: Encourage your student to

- show care in construction of the booklet
- add interesting details
- colour the background and the illustrations

Step 3: Help the student fold the paper in half.



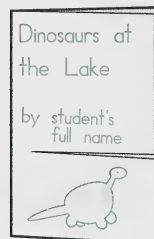
Step 4: Approximately eight centimetres from the bottom of the folded paper, cut the top sheet toward the fold. Stop cutting about two centimetres from the fold.



Step 5: Have the student print a title on the top section of paper.



Step 6: Then have the student's full name printed after the word **by**. The student can illustrate the title on the bottom flap of paper.



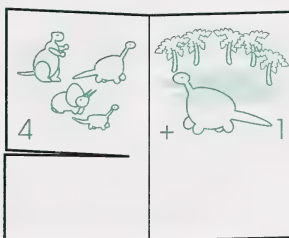
Step 7: Ask the student to invent a number story or choose one from a previous activity. An example story follows.

**4 dinosaurs went to the lake for a drink.
1 more dinosaur came along.
How many dinosaurs were at the lake?**

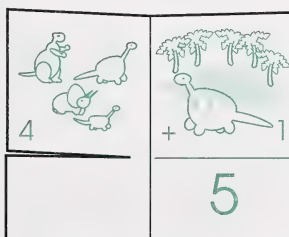
Step 8: On the top-left inside page, have the student illustrate the first number in the story and print the number **beside** the picture.



Step 9: On the top-right inside page, have the student illustrate the second number in the story and print the number **beside** the picture. Place an addition sign **between** the two numbers.



Step 10: Draw a straight line below the illustration from the fold to the outside edge. Ask the student to print the **sum** of the two numbers underneath the line. For example, print 5 if the numbers are $4 + 1$.

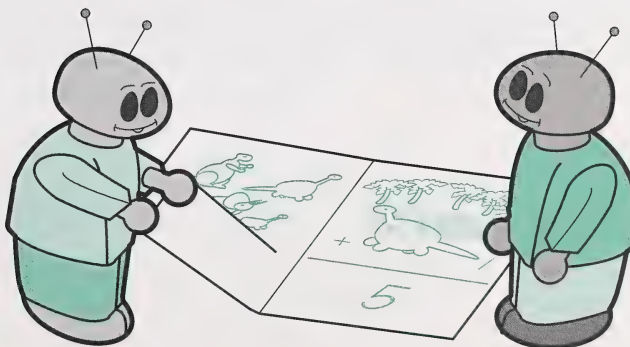


Step 11: Have your student read the booklet to others as follows.

- Read the title and author.
- Keep the bottom flap down. Open the top one only.
- Read the first half of the story from left to right.

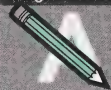
4 dinosaurs **plus** 1 dinosaur

- Ask if the listener knows the sum of the two numbers.
- Open the flap, and reveal the sum.



Materials

Mathematics
Assignment Booklet



Turn to Mathematics Assignment Booklet 2A, and follow the directions to complete the assignment for Day 1.

Then complete Day 1: Learning Log. Under Student's Thoughts, print a sentence or two telling what the student thinks about this day's mathematics learning. For example, did the child enjoy creating number stories? Why or why not?



Day 2



Calendar Time

Time recommended: 10 minutes

If your student is not registered in the accompanying Thematic program, refer to the Calendar Package for further information.

Focus for Today

Time recommended: 45 minutes

- constructing number sentences with sums from three to five



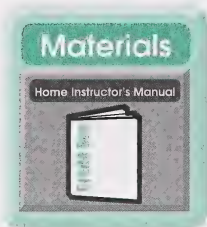
Vocabulary (spoken only)

sum
count forward
first half
over
centre
either side

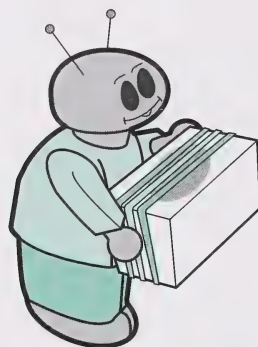
add
adding
first
next
underneath
number sentence

total
equals sign
equal
value
amount
cover pages

Materials Required



- box containing required materials from the master list (See the Home Instructor's Manual.)
- empty tissue or shoe box
- five different-coloured elastic bands
- collection of counters, or small objects to count (optional)
- commercial dominoes or ones made from construction paper (optional)
- paper punch (optional)

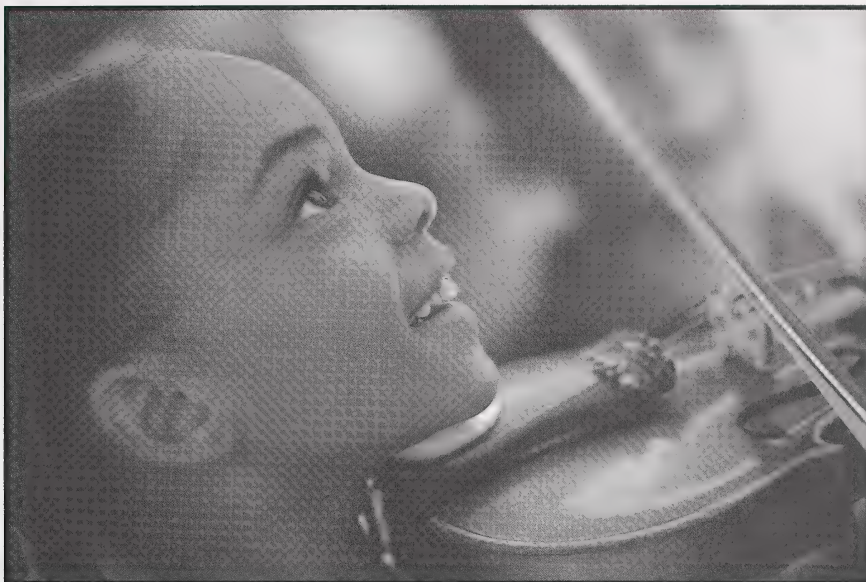


Remember to keep materials such as counters for future use.



Observe how your student determines the **sum** of two numbers. Does the child do any of the following?

- **count forward** from the first number, for example, if the **first half** of the number sentence is $2+1$, begin at the number **2** and then count **1** more
- perform a physical action when counting, for example, move the objects or point to each object
- have more difficulty counting from some numbers than from other numbers



Developing the Concept

Give your student some coloured elastic bands and an empty tissue box or shoe box with a hole cut in the lid. The pictures that follow refer to a tissue box.

You could wrap the box with paper and recut the hole at the top, if you wish. The student could then decorate the sides of the box. When the box is ready, use the following script.



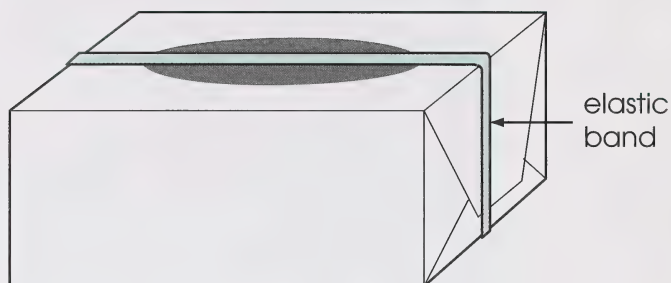
You will make something special with this box.

In the rhyme "Hey Diddle, Diddle," what instrument did the cat play? (fiddle)



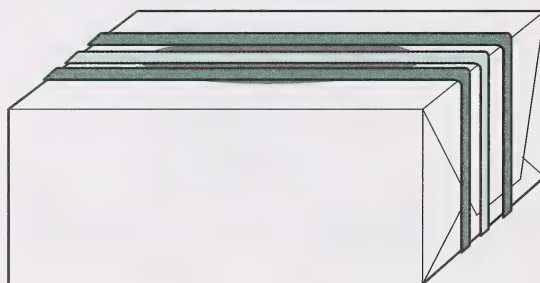
You will make a fiddle with this box.

Put an elastic band around the box, so that it is **over** the **centre** of the hole.



The elastic band is just like a string on a fiddle.

Place 2 more elastic bands on the box so that they are on **either side** of the **centre** band.



How many elastic bands are there in all? (3)

The number 3 is the **sum** of 1 and 2.

Ask the student to print the title **Finding the Sum** at the top of a blank sheet of loose-leaf paper. Then continue the discussion.

How many elastics did you have at first? (1)

How many elastics did you **add** to the **first** elastic band? (2)

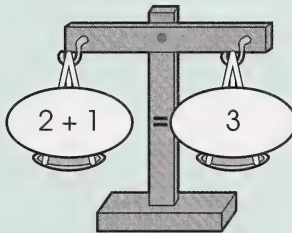
Underneath the title Finding the Sum, print the **first half** of the **number sentence**. ($1+2$)

The sum is the number that 1 and 2 add up to in total.

What is the sum of $1+2$? (3)



The **equals sign** and the word **equal** both mean that the numbers on both sides of the equals sign have the same **value**.



To review the meaning of the **equals sign** and the word **equal**, make one equals sign on a card, and ask the student to make a second one on another card.

The **equals sign** shows that the numbers on both sides of the equals sign have the same **value**.

Add **=3** to the first half of the number sentence **1+2** on your paper.

When you print the number sentence **1+2=3**, you are saying that **1+2** is the same **value**, or **amount**, as 3.

Use your fiddle to find out more about **adding**.

How many elastic bands are on your fiddle box? (3)

Add 1 more elastic band to your fiddle box.

How many elastic bands did you add to the fiddle box? (1)

Underneath the number sentence $2+1=3$, print the first half of your **next** number sentence. ($3+1$)

Place an equals sign after the number 1.

What is the sum of $3+1$?

Count your elastic bands to find the answer.
(1, 2, 3, 4)

Now complete your number sentence.
($3+1=4$)

Help the student construct each of the following number sentences and record them on the page called Finding the Sum.

$$2+3=5$$

$$0+5=5$$

$$1+4=5$$

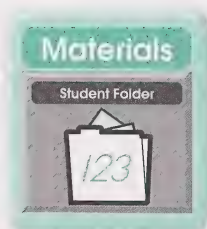
$$3+0=3$$

$$1+1=2$$

$$3+1=4$$

$$3+2=5$$

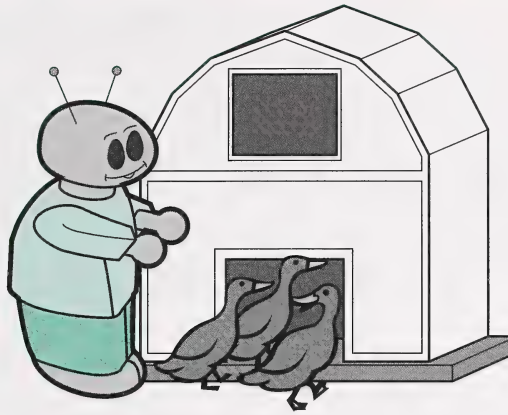
$$2+1=3$$



Ask the student to print the following information on the back of the paper:

- student's full name
- module and day numbers (M2D2)

Place Finding the Sum in the Student Folder.



Applying the Concept

My Farm Animal Booklet

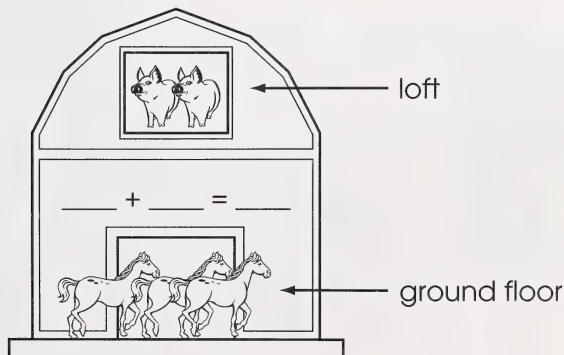
Step 1: Encourage your student to do the following:

- show care in the construction of the booklet
- add interesting details
- colour the illustrations

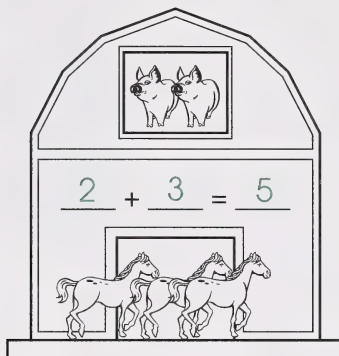
Step 2: Cut the shape of a barn from five sheets of unlined paper.

Step 3: Draw a loft and a ground-floor door on each barn shape.

Step 4: Ask the student to draw farm animals in the loft and ground-floor door openings of one barn shape.



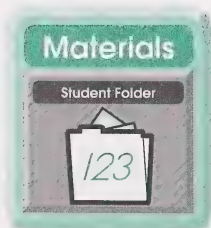
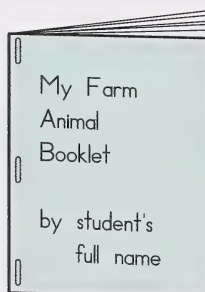
Step 5: Have the student print a number sentence above the ground-floor door about the farm animals, for example, $2 + 3 = 5$.



Step 6: Have the student create four more pages, using a different number sentence for each of the remaining barn shapes.

Step 7: Have the student create front and back **cover pages** and attach them to the five barn shapes to make a booklet.

Have your student's full name printed on the front and M2D2 on the back of the booklet.



Step 8: Have the student read the farm animal booklet to family and friends. Then place the booklet in the Student Folder.

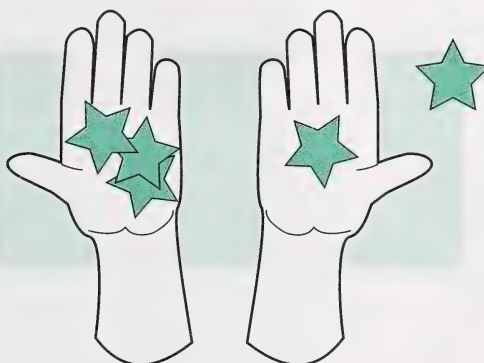
Enrichment (optional)

1. What's in My Hands?

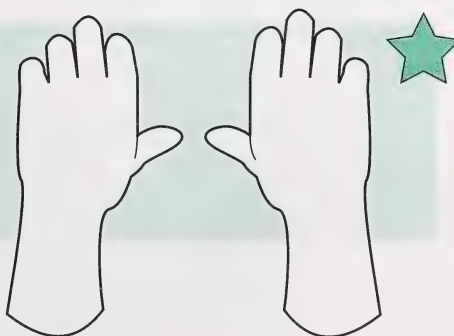
Step 1: Have the student give five counters to each game player.



Step 2: Ask the players to close their eyes while you hide a set of up to five in your hands. For example, put three counters in one hand and one counter in the other hand. Leave out the one remaining, and say that the sum of the two numbers in your hands is four.



Step 3: Have the players open their eyes. Ask them to guess how many counters you have hidden in each hand.

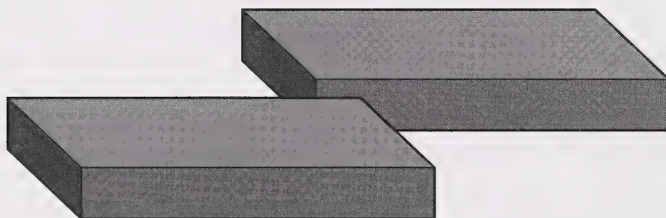


Step 4: The player who guesses the correct number combination can hide the next sum of counters.

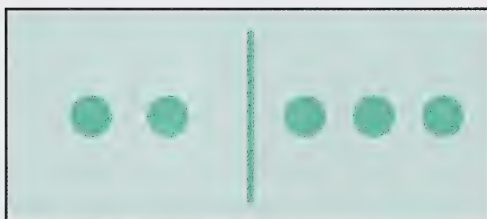
Continue until the student has made various number combinations to five or shows signs of fatigue.

2. Dominoes

Step 1: Place face down a commercial set of dominoes or ones that you and the student have made from construction paper. Choose only dominoes with sums that add up to five or fewer.

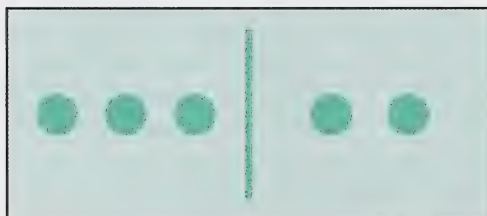


Step 2: Have the student turn over each domino and print a number sentence to match the dots on the domino.



$$2 + 3 = 5$$

Step 3: Turn the domino around so the order of dots is reversed, and have the student print the new number sentence.



$$3 + 2 = 5$$

Step 4: Discuss the similarities and differences between the two number sentences.



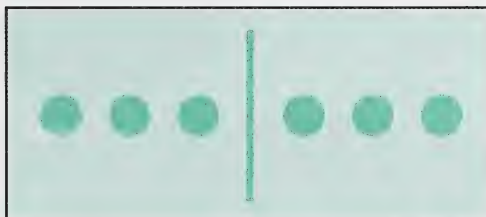
When I changed the numbers around in the first half of the number sentence, the sum stayed the same.

$$2 + 3 = 5$$

$$3 + 2 = 5$$

Step 5: Repeat Steps 1 to 4 with the remaining dominoes.

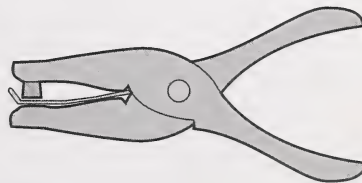
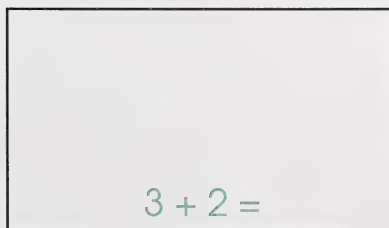
If you think your student is ready, you could work with sums greater than five.



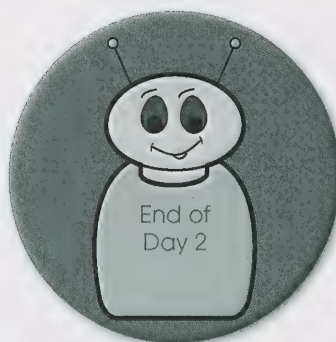
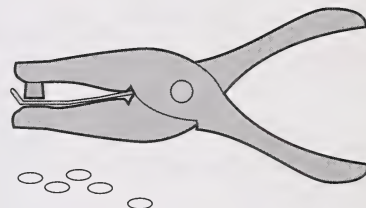
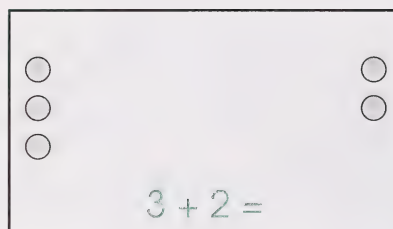
$$3 + 3 = 6$$

3. Paper Punch

Step 1: Provide index cards with the first half of a number sentence on one side and a paper punch with a spring that is not too stiff.



Step 2: Have the student illustrate the addition on the card by punching holes along the edges.



Day 3



Calendar Time

Time recommended: 10 minutes

If your student is not registered in the accompanying Grade One Thematic program, refer to the Calendar Package for further information.

Focus for Today

Time recommended: 45 minutes

- problem solving: constructing number sentences with sums to five
- recognizing and extending number-sentence patterns, using sums to five



Vocabulary (spoken only)

recognize	equals sign
extend patterns	sum
problem solving	number property
unknown	reversed
sets	same
first half	strategies
number-sentence card	counters
solve the problem	visual examples

Materials Required

- box containing required materials from the master list
- collections of items from nature
- two or three bags to hold nature-walk items
- zero to five number cards from Module 1
- equals sign, made from half an index card
- plain-coloured paper plate
- clear, self-adhesive vinyl (optional)
- brown, red, yellow, orange, and green modelling clay (optional)
- paper rivet (optional)
- collection of counters (optional)



Keep the number cards and counters for future activities.



Activities



The ability to **recognize** and **extend patterns** provides an essential foundation for **problem solving**. Most problem-solving situations are matters of linking known information with the **unknown** and determining the relationship between them.

Sometimes, a number pattern must be developed and studied before a linkage can be made.

In today's lesson, your student will look closely at numbers and number-sentence patterns that can help solve unknown problems.

Developing the Concept

Weather permitting, take your student on a nature walk. Gather **sets** of one to five items, such as fallen leaves, twigs, or rocks. Take bags along for carrying items.

If the weather is not suitable, you could substitute other counting items than the ones noted below.



Ask the student to choose one set of zero to five nature items to place on a paper plate. For example, the student might choose three leaves, one rock, or zero twigs. Have the student tell how many members are in the set.

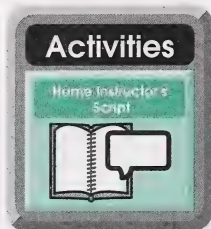


Say that you are going to add to the set.



Choose zero to five matching items. Be sure the number you add will not make the sum greater than five.

If the student already has five objects on the plate, say that you are adding zero objects. Then proceed with the script.



I have added to your set.

Now, how many objects are on the plate?

Print a number sentence to show what you did. ($__ + __ = __$)

Print the **first half** of the number sentence on a blank card.

$__ + __$

You have made a **number-sentence card**.

This card will help you **solve the problem** of how many objects are on the plate.

Have the student place a card with an **equals sign** beside the number-sentence card.



$3 + 2$

$=$

Ask the student to count the number of items on the plate and to choose the correct number card to show the **sum** of the first half of the number sentence. For example, the child would choose the number five card to show that the sum of $3 + 2 = 5$.



$3 + 2$	$=$	5
---------	-----	-----

Take turns choosing items to place on the plate and printing matching number sentences on cards.

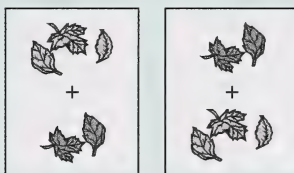




To develop the student's ability to recognize and extend number-sentence patterns, focus attention on the following number property and number-sentence patterns.

Number Property

When the numbers in the first half of a number sentence are **reversed** in position, the sum is still the **same**. For example, if the first half of a number sentence is $3 + 2$, then the sum would still be the same if the numbers were reversed to be $2 + 3$.



Number-Sentence Patterns

number	addition sign	number	equals sign	sum
2	+	3	=	5



number	addition sign	number	equals sign	sum
3	+	2	=	5

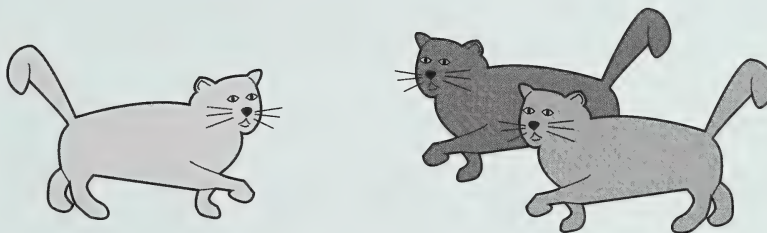




$$3 + 2 = 5$$



Problem-solving **strategies** are important for the student to learn. Strategies such as the use of **counters** and **visual examples** can make problems easier to solve.

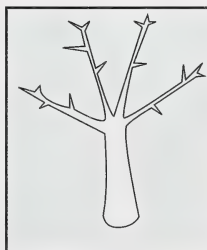


$$1 + 2 = 3$$

Applying the Concept

Addition Tree

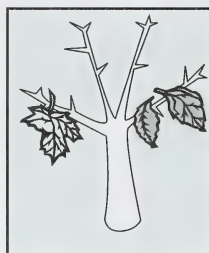
Step 1: Help the student use construction paper to make a tree mat similar to the one shown below. You could cover the mat with clear, self-adhesive vinyl to make it reusable.



Step 2: Give the student modelling clay or construction paper in colours such as brown, red, yellow, orange, and green. Have the student make coloured leaves for the tree.



Step 3: Model an addition sentence with a sum up to five by placing two colours of leaves on the tree. Have the student print the matching number sentence on an index card.



$$1 + 2 = 3$$

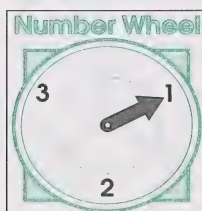
Step 4: Take turns with this activity until the student has reviewed all sums to five or until the child shows signs of fatigue.

Keep the number-sentence cards for an activity next day.

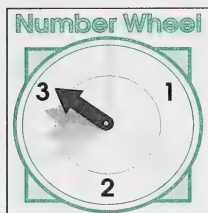
Enrichment (optional)

Spin the Wheel

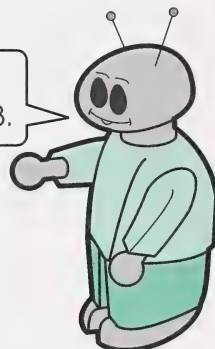
Step 1: Make a Number Wheel on manila paper, similar to the one shown below. Use a paper rivet to connect an arrow.



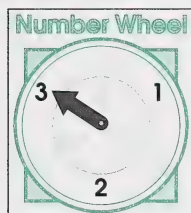
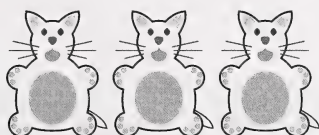
Step 2: Have the student spin the arrow and say the number that it stops at or is closest to.



It stopped at the number 3.

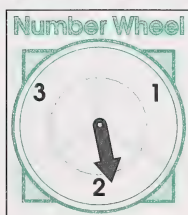


Step 3: Have the student select that number of counters and place them above the Number Wheel. For example, if the arrow points to 3, the student would place three counters.



Step 4: Have the student spin the arrow again and say the first number plus the second number and then the word **equals**. For example, the child might say, “Three plus two equals”

Then have the student add two more counters to the set.



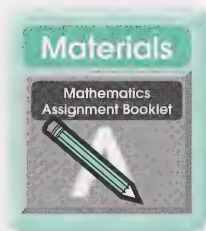
Day 3 • Mathematics

Note that with this Number Wheel, your student could be challenged with a sum of six.

Step 5: Ask the student to count this number of objects and say the number sentence. For example, three cats plus two cats equals five cats.



Step 6: Take turns spinning the arrow and constructing number sentences until the child has practised sums to five.



Turn to Mathematics Assignment Booklet 2A, and follow the directions to do the assignment for Day 3.



Day 4



Calendar Time

Time recommended: 10 minutes

Proceed with Calendar Time activities as usual.

Focus for Today

Time recommended: 45 minutes

- adding sums to five in the horizontal and vertical positions
- creating a number sentence from a display or picture

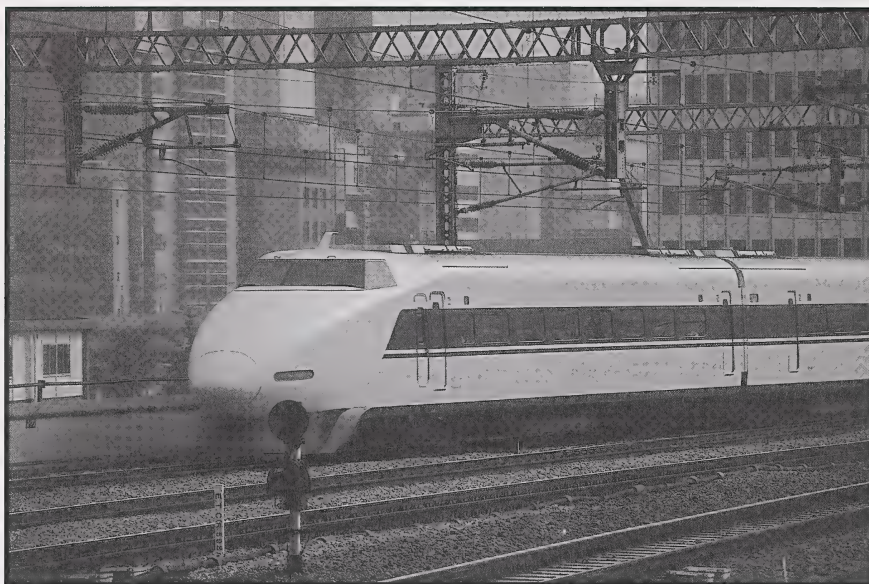


Vocabulary (spoken only)

horizontal
straight across
vertical
up

down
mystery
clue
figure out

cube
train
tower
way



Trains and towers

Materials Required

- box containing materials from the master list
- number-sentence cards from last day
- plastic container, such as a margarine tub
- plain-coloured paper plate
- two colours of bingo chips or checkers
- plastic interlocking cubes or blocks



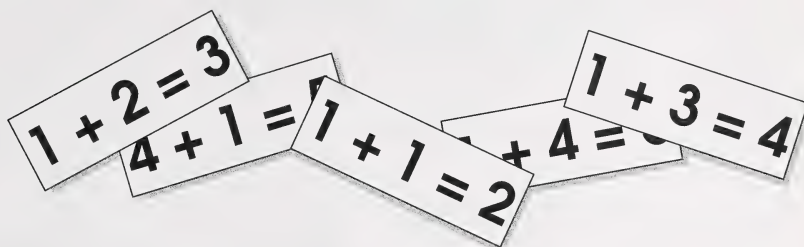
Today, the student will continue with sums to five. In past days, the student worked only with **horizontal**, or **straight-across**, number sentences. Today, you will introduce **vertical**, or **up-and-down**, number sentences.

$$2 + 3 = 5$$

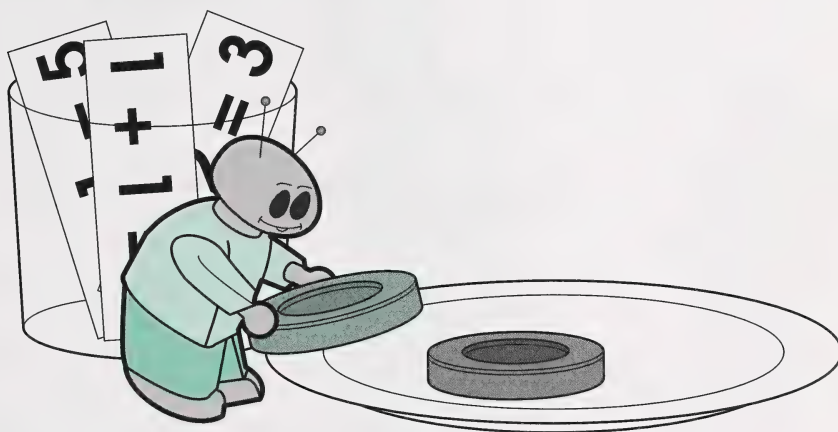
$$\begin{array}{r} 2 \\ + 3 \\ \hline 5 \end{array}$$

Developing the Concept

Place last day's number-sentence cards in a plastic container.



Give the student two sets of different-coloured bingo chips or checkers and a paper plate.



Choose a number-sentence card from the container, and begin.

Place counters on the paper plate to show the number sentence on the card.

For example, if the number sentence said $3 + 1 = 4$, the student would place three counters of one colour and one counter of another colour.

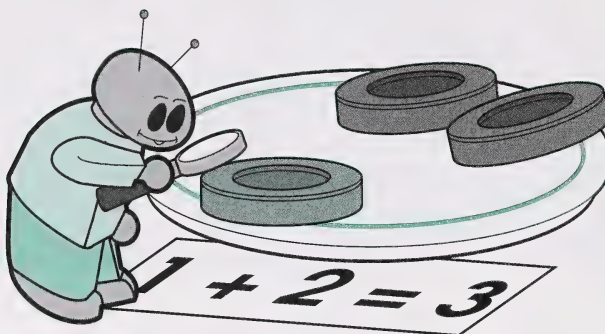
I will choose another number card, but this time, I will keep what it says a **mystery**.



Choose a card, place it face down, and put counters on the plate to show the number sentence from the card.

Look at the counters on the plate for a **clue** about the number sentence on the card.

Use your detective skills to **figure out** the number sentence on the card.



Take turns choosing number-sentence cards until all the problems have been solved.

Applying the Concept

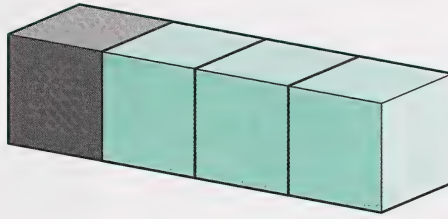
Trains and Towers

Give the student two different colours of plastic interlocking cubes or blocks. Connect a **cube** of one colour with three cubes of another colour, for example, green and yellow. Instruct as follows.

Here is a **train** with 1 green **cube** and 3 yellow cubes.



What number sentence can you make from this set of cubes? ($1+3=4$)

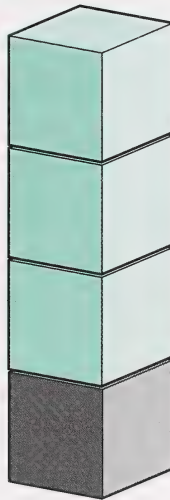


$$1+3=4$$

Now, I will change the **train** to a **tower**.

Stack the cubes so the three yellow ones are on top of the green one.

See my tower.



First, I put 1 green cube on the table.

Then I put three yellow cubes on **top**.

The tower shows the same number sentence as the train did, $1+3=4$, but in an up-and-down **way**.

Another way to say **up and down** is to use the word **vertical**.

Here is a vertical number sentence.

$$\begin{array}{r} 1 \\ + 3 \\ \hline 4 \end{array}$$

Last day, you made your number sentences go **straight across**.

Another way to say **straight across** is to use the word **horizontal**.

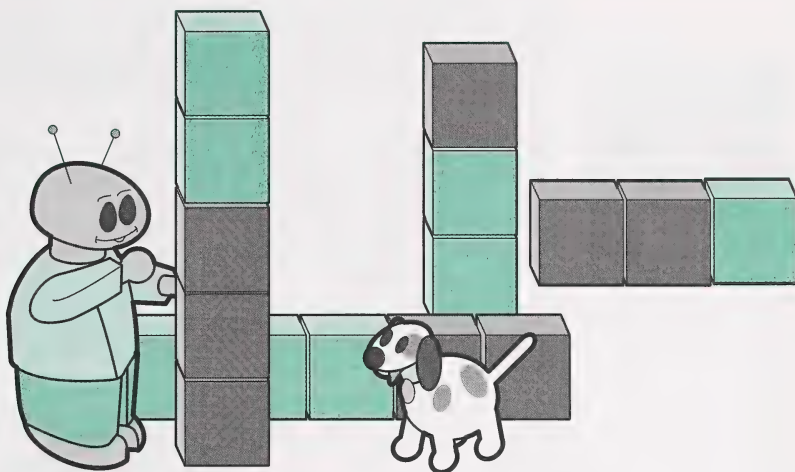
Here is a horizontal number sentence.

$$1 + 3 = 4$$

Take turns making trains and towers until the student has practised a variety of sums to five in the vertical and horizontal positions. Have the partner print each matching number sentence.



$$\begin{array}{r} 3 \\ + 1 \\ \hline 4 \end{array}$$

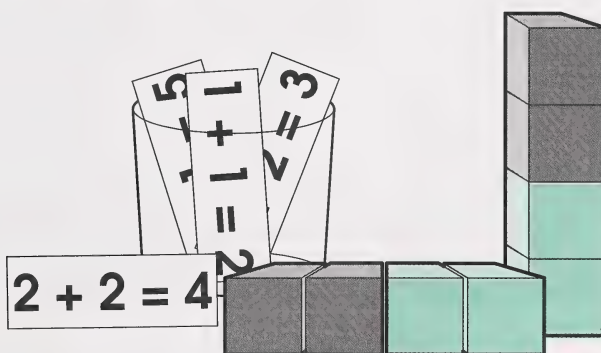


Enrichment (optional)

More Trains and Towers

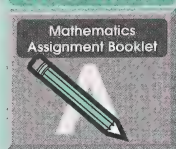
Ask the student to pick a number-sentence card from a container. Have the student show the number sentence with interlocking cubes or blocks, first as a train and then as a tower.

Take turns with this activity, and have the student watch to make sure your work is correct.



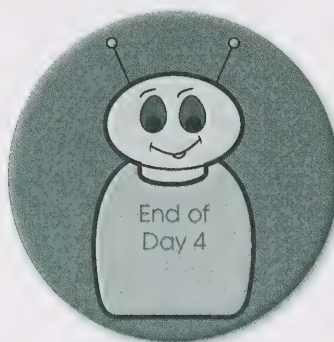
Day 4 • Mathematics

Materials



Turn to Mathematics Assignment Booklet 2A, and follow the directions to do the assignment for Day 4.

Then complete Day 4: Learning Log. Under Student's Thoughts, print a sentence or two telling what the student thinks about this day's mathematics learning, for example, about the ability to identify number sentences in a train or tower position.



Day 5



Calendar Time

Time recommended: 10 minutes

Proceed with the usual Calendar Time activities plus a few additional ones.

Focus for Today

Time recommended: 45 minutes

- expressing sums from zero to five in different ways



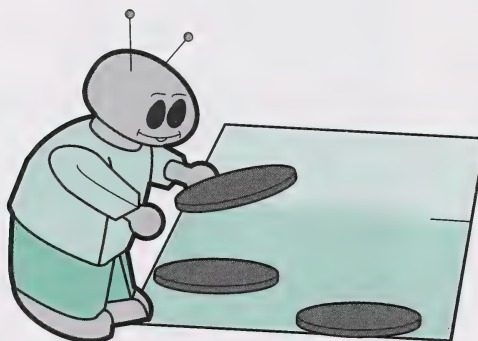
Vocabulary (spoken only)

pennies
similarities
differences
addends
way/ways

Materials Required

- box containing materials from the master list
- pennies or other small counters, such as bingo chips, interlocking cubes, raisins, or candies
- zero to five number cards (optional)
- plastic container (optional)
- 16 bottle caps or circles cut from construction paper (optional)

Keep reusable materials for future activities. Envelopes or plastic tubs (new or used) are convenient containers for this purpose.



Developing the Concept

Activities

Teaching Tip

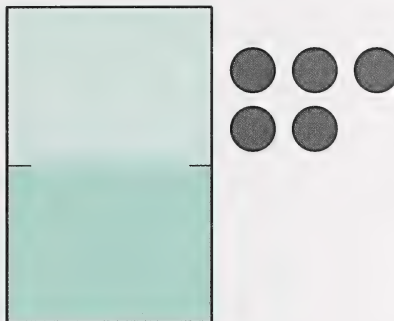


Today, your student will be developing the ability to express sums in different ways. For example, the number **4** can also be shown in the following ways:

$$2+2 \quad 0+4 \quad 4+0 \quad 3+1 \quad 1+3$$

Expressing the same sum in different ways will help your student develop an understanding of and proficiency with calculations. The student will continue to work with sums no greater than five.

Give your student small counters, such as **pennies**, and a two-part mat similar to the one shown below. Make the mat by joining two colours of construction paper with tape or glue.

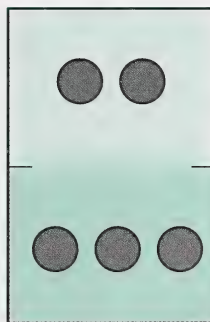


Ask your student to use the pennies on the two-part mat to model the following addition story.



Li is going to the store for candies.
He takes 2 **pennies** from his piggy bank and
3 pennies from his pocket.

How many pennies does he have? (5)



Monitor the placement of the pennies on the mat. Discuss and correct any errors. Then have the student print the corresponding number sentence on a piece of loose-leaf paper. The student may choose to print the horizontal or vertical form of the number sentence.

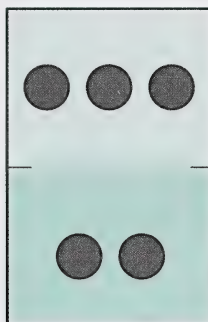
$$2 + 3 = 5$$

$$\begin{array}{r} 2 \\ + 3 \\ \hline 5 \end{array}$$

Tell your student to listen to a second story and place the pennies on the mat to match that story.

Ruth is going to the store for candies.
She takes 3 pennies from her piggy bank and
2 pennies from her pocket.

How many pennies does she have? (5)



Continue to monitor the placement of pennies on the mat. Discuss and correct any errors. Have the student print the corresponding number sentence below the first one.

$$2 + 3 = 5$$

$$3 + 2 = 5$$

addend: any number that is added to obtain a sum

For example, in the number sentence $2 + 3 = 5$, the 2 and the 3 are addends.

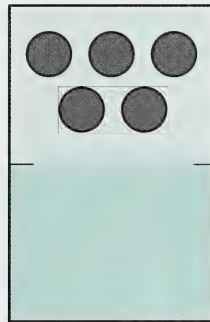
Ask your student to talk about **similarities** and **differences** between the two addition stories and number sentences. If the student does not say that the order of the two **addends** has been changed while the sum remains the same, focus attention on this.



Tell the student to listen to a third story and place the pennies to match.

Mohammed is going to the store for candies. He takes 5 pennies from his piggy bank and 0 pennies from his pocket.

How many pennies does he have? (5)



Check the student's placement of pennies on the mat. Discuss and correct any errors. Have the student print the corresponding number sentence below the second one.

$$2+3=5$$

$$3+2=5$$

$$5+0=5$$

If the student does not mention that the sum is still the same, even though the addends are different, focus again on this fact.

Make up a fourth story that shows the number sentence $0+5=5$, and have your student record this sentence.

$$2+3=5$$

$$3+2=5$$

$$5+0=5$$

$$0+5=5$$

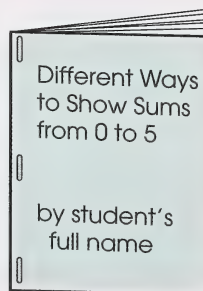
Applying the Concept

Number Names Booklet

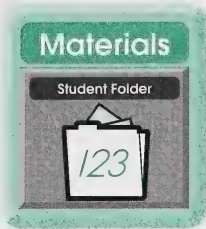
Have the student use six sheets of unlined paper to record as many **ways** as possible to show sums from zero to five. Encourage your student to use the two-part mat and counters when thinking of different ways.

0	1	2	3	4	5
0+0	1+0	1+1	1+2	2+2	0+5
	0+1	2+0	2+1	1+3	5+0
		0+2	0+3	3+1	4+1
			3+0	0+3	1+4
				3+0	3+2
					2+3

Give help where needed. When all six sheets have been completed, have the student use construction paper to make front and back cover pages. The student could use a title such as **Different Ways to Show Sums from 0 to 5**.



Place the pages in order between the covers, and staple the booklet together. The student could talk about the booklet with family and friends.



Before placing the booklet in the Student Folder, print the abbreviated form of the module and day numbers, M2D5, on the back of the booklet.

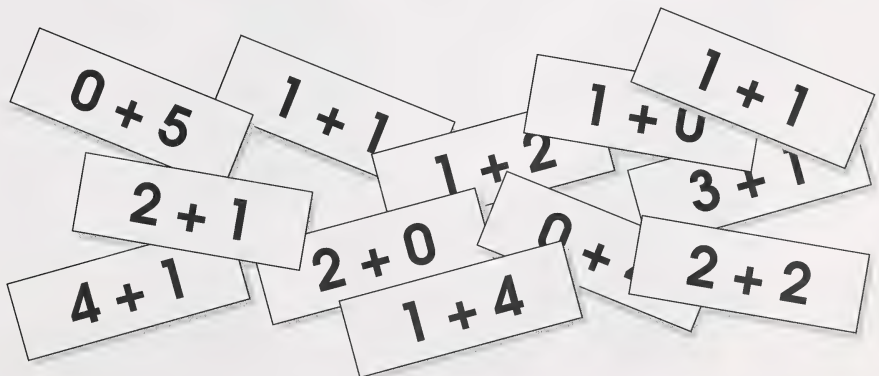
Consider giving the student a pat on the back, a star, a stamp, or a sticker when the activity has been completed with care and effort.



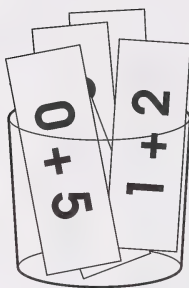
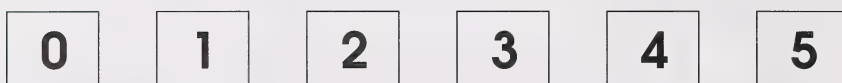
Enrichment (optional)

1. Sum Solitaire

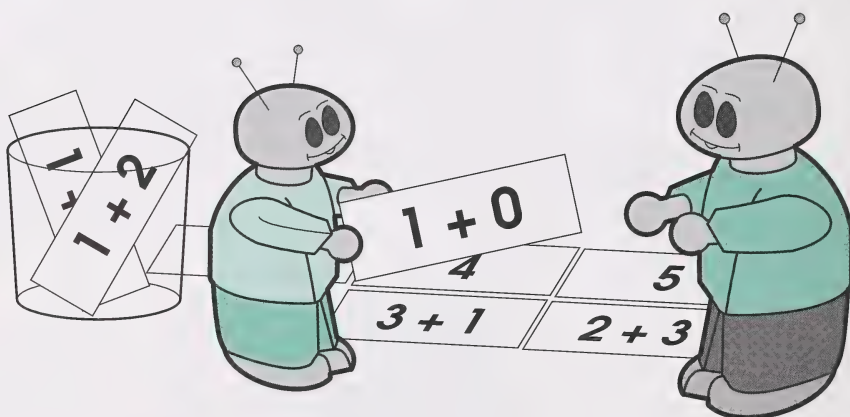
Step 1: Use blank index cards to show different ways to make sums from zero to five.



Step 2: Place the zero to five sum cards in a container and the zero to five number cards in a horizontal row.



Step 3: Take turns picking a sum card from the container, reading it aloud, and then placing it below the correct number card until all the sum cards have been placed.

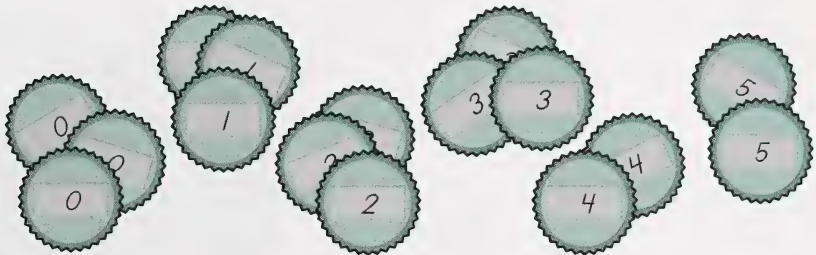


2. Make the Sum

Step 1: Use masking tape to cover the tops of 16 bottle caps, or use circles cut from construction paper.

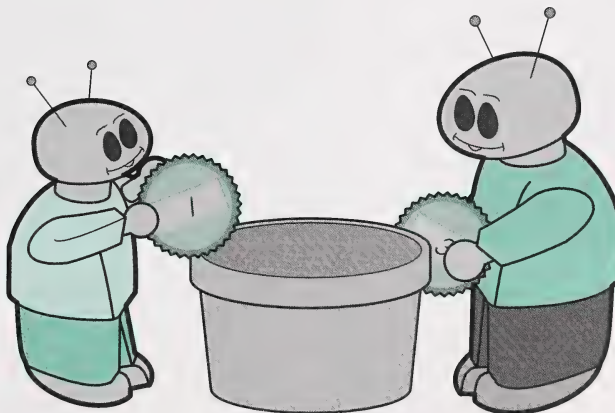
Step 2: Label the bottle caps or paper circles by printing numbers on them as follows:

- 0 on three bottle caps
- 1 on three bottle caps
- 2 on three bottle caps
- 3 on three bottle caps
- 4 on two bottle caps
- 5 on two bottle caps



Step 3: Place the numbered bottle caps or circles in a container.

Step 4: Shake the container. Then each pull out one cap or circle. Find the sum of your two numbers. Note that your student could be challenged with sums to ten.



Step 5: Take turns adding the numbers on your two caps or circles. If necessary, help the student.

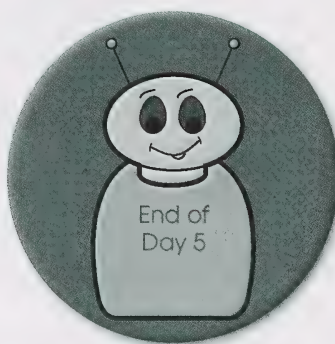
Materials

Mathematics
Assignment Booklet



Turn to Mathematics Assignment Booklet 2A, and follow the directions to do the assignment for Day 5.

Complete Day 5: Learning Log. Under Student's Thoughts, print a sentence or two telling what the student thinks about this day's mathematics learning. For example, was it easy to recognize different names for the numbers zero to five?



Day 6



Calendar Time

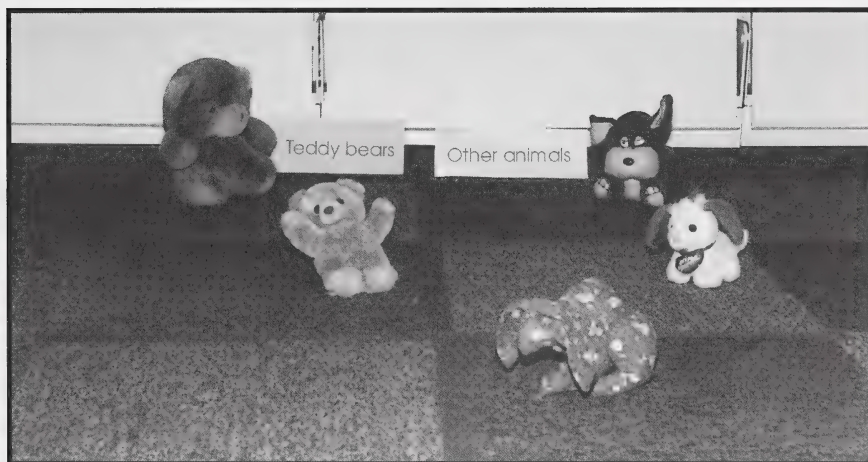
Time recommended: 10 minutes

Proceed with Calendar Time activities as usual.

Focus for Today

Time recommended: 45 minutes

- problem solving: making and interpreting a tally chart, a concrete graph, and a picture graph



Vocabulary (spoken only)

tally chart
concrete graph
picture graph
tally
real objects
pictures of objects
vertical position
up and down

title
top
key
bottom
comparison
types
amounts
compare

cans
boxes
containers
tally mark
alike
different
horizontal
binoculars

Materials Required

- food items in cans, boxes, and other containers
- three different collections of toys (optional)
- binoculars (optional)
- bird identification book (optional)

Activities



Today, the student will make, interpret, and read a **tally chart**, a **concrete graph**, and a **picture graph**.

A **tally** is a way to count by making a mark for each item. Every fifth mark can cross the four preceding ones so the group of marks counts as five items, as shown below.



A tally count can be shown in a tally chart, such as the one that follows.

Weather	Tally of Weather	Total
sun		7
cloudy		4
rainy		5
snowy		4
partly		4
sun		4
partly		4

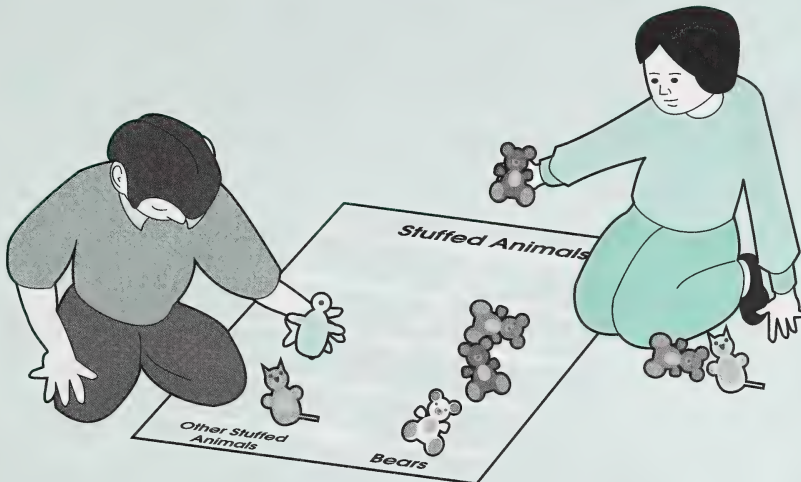
Concrete graphs and picture graphs are similar, except that concrete graphs use **real objects**, and picture graphs use **pictures of objects**.

A child's first graphs should involve concrete, or real, materials. Each object—for example, a block—should represent only one thing, and the student should compare only two or three groups of objects at a time.

The following illustration shows a concrete graph that compares the numbers of stuffed bears and other stuffed animals.

Continued ...

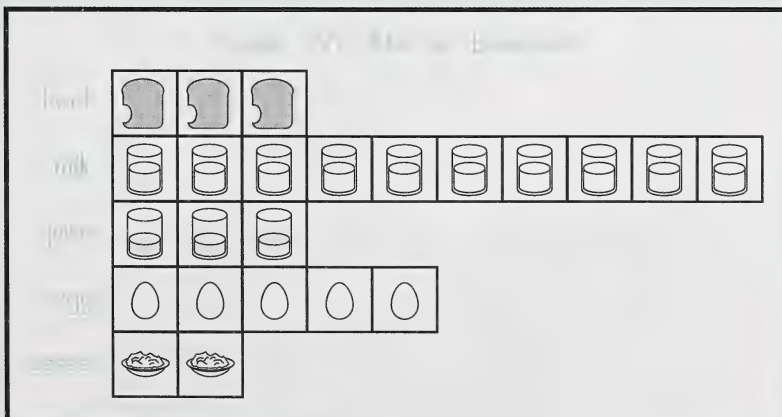
Concrete Graph



This graph is in a **vertical position**. When you read it, your eyes move mainly **up and down**. The **title** is at the **top**, and the **key** is at the **bottom**. Each stuffed animal is in a box the same size as all other boxes; this allows **comparison** at a glance.

The following picture graph shows **types** and **amounts** of food that a family ate for breakfast. One picture stands for one food, and the pictures are lined up so you can clearly count and **compare**. The key on the left lists the types of food.

Picture Graph



Developing the Concept

Have the student look in a kitchen cupboard for food items in **cans**, **boxes**, and other **containers**. Use the following script.



I wonder whether there is more food here in **cans**, **boxes**, or other **containers**?



What do you think? (Do not evaluate the student's answer in any way.)

There is a special way to tell whether there are more cans, boxes, or other containers here.

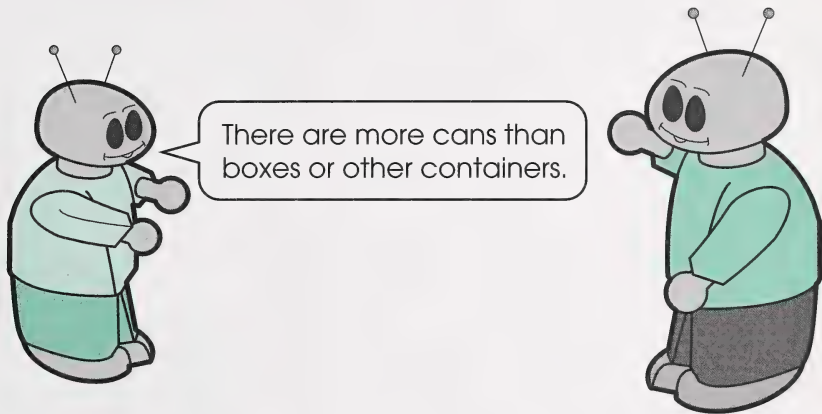
Tally Chart

Make a tally chart similar to the one shown below. Explain how to place a **tally mark** in the appropriate column to represent each food item. Then show the student how to total the tally marks.

Type of Container	Tally	Total
cans		5
boxes		3
other containers		2

Discuss the following about your tally chart:

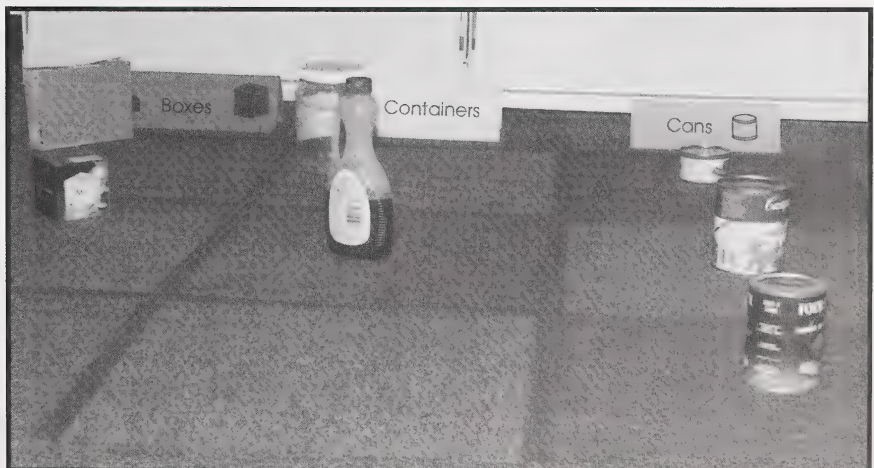
- how many there are of each type of container
- which there are more of
- which there are fewer of
- why there might be more of one type than another



Concrete Graph

Say that you are going to show another special way to tell whether there are more cans, boxes, or other containers.

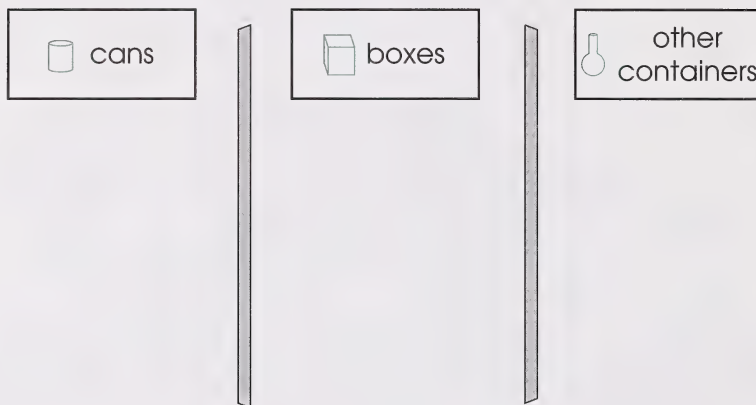
The second special way to show the information is called a **concrete graph**.



Day 6 • Mathematics

Help the student print and illustrate the word **cans** on one blank index card, the word **boxes** on a second card, and the word **containers** on a third card.

Use masking tape and the three cards to set up a concrete graph similar to the one shown below.



Help the student sort the food items according to the three categories. Then discuss the following questions.

How are the tally chart and the concrete graph **alike**? (They tell us how many cans, boxes, and containers are here.)

How are they **different**? (The tally chart uses tally marks. The concrete graph uses real objects.)

Which are there most of—cans, boxes, or other containers? (The answer depends on your graph.)

Which are there least of—cans, boxes, or other containers? (The answer depends on your graph.)

How many cans, boxes, and other containers are there in total? (The answer depends on your graph.)

What are 3 important things that this graph tells you? (Answers may vary.)

This last question allows the student to voice personal observations, such as the following:

- There are more boxes than cans.
- The total number of cans and containers equals the number of boxes.
- The two containers are different shapes.



Applying the Concept

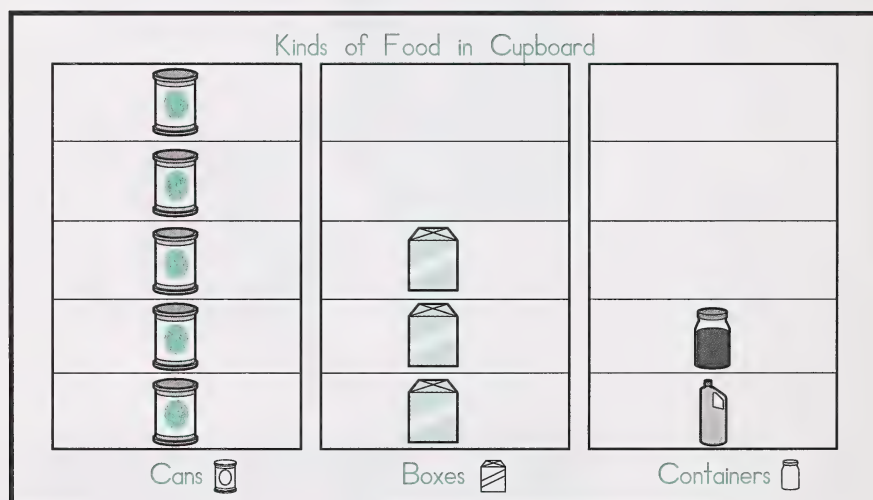
Picture Graph

The student will now transfer the data from the tally chart and concrete graph to a picture graph.

Use the following script.

You will make a **picture graph** to show how many **cans**, **boxes**, or other **containers** are in the cupboard.

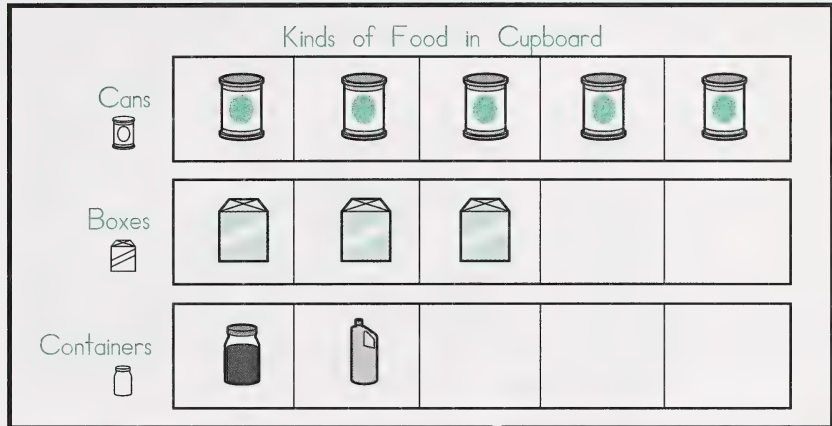
A **picture graph** uses pictures to stand for objects. A picture graph also has a **title**.



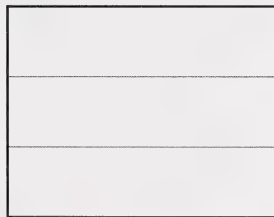
Begin by deciding whether you want your graph to be **vertical** or **horizontal**.

The picture graph **above** is **vertical**. Your eyes move **up and down** to count the pictures.

The picture graph **below** is **horizontal**. Your eyes move from **left to right** to count the pictures.



Help the student decide whether to make the graph vertical or horizontal. Then fold a sheet of unlined paper into three equal parts for a graph in either the **horizontal** or **vertical** position.






horizontal position






vertical position



Help set up the graph according to one of the following examples.

Kinds of Food in Cupboard			
Cans 			
Boxes 			
Containers 			

horizontal position

Kinds of Food in Cupboard		
Cans 	Boxes 	Containers 

vertical position

Point out that the illustration boxes should be lined up neatly so that the reader can clearly compare the number of items in each group. Help the student think of a **title** and a **key**, such as cans, boxes, containers.

Finally, have the student illustrate the kinds of food in the cupboard. When the graph is finished, discuss it as follows.

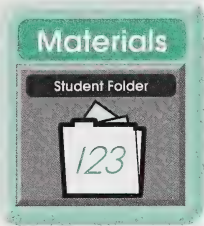
Look at your picture graph. Which are there **more** of—cans, boxes, or other containers?

Which are there **fewer** of—cans, boxes, or other containers?

How do you know? (You can count them.)

How is the picture graph like the tally chart and the concrete graph? (They all tell how many cans, boxes, and containers are here.)

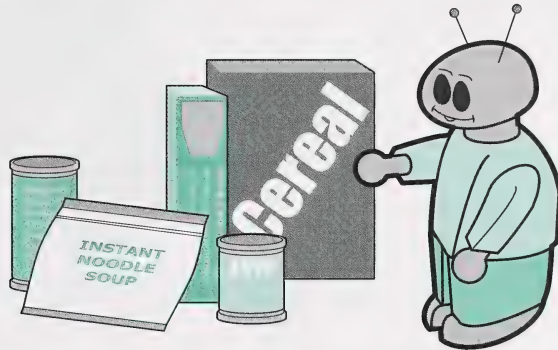
How is it different? (The tally chart uses tally marks. The concrete graph uses real objects. The picture graph uses pictures.)



Have the student print the following on the back of the graph:

- full name
- abbreviated form of module and day numbers (M2D6)











Then place the graph in the Student Folder.

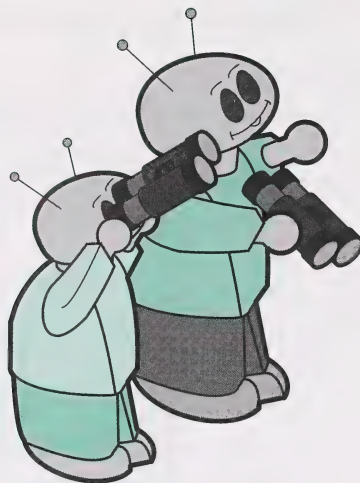


Enrichment (optional)

1. Toy Graph

Help the student make a graph that compares the numbers of three kinds of toys, such as trucks, cars, and motorcycles. Display the graph at the student's eye level. Encourage the student to ask you questions, such as, "What kind of toy do I have the most?"

Vehicles		
		
		
		
		
		
Truck	Car	Motorcycle



2. Bird Graph




If you have **binoculars**, show the student how to use them for this bird-watching and graphing activity. You could take several days to complete this graph. Use the following script to begin.

You can gather information to make a graph about the birds in your neighbourhood.

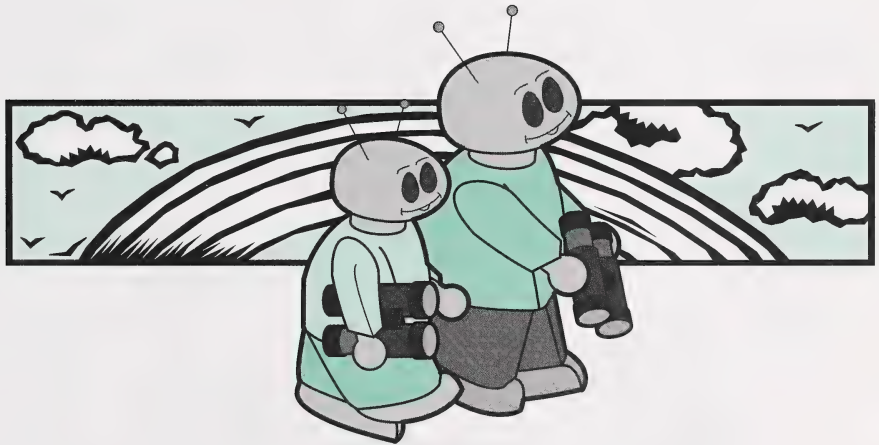
Look for three kinds of birds. You could look for a **crow**, a **robin**, and a **finch** (or other birds in your area).



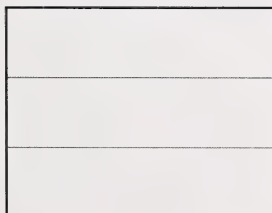
Step 1: Help the student choose three birds and make a tally chart similar to the following.

Bird	Tally of Birds	Total
crow 		
robin 		
finch 		

Step 2: Take the student for a walk outside, or look out a window for the three kinds of birds. Each time you see one, have the student place a tally mark on the chart.



Step 3: Fold a sheet of paper into three sections. The student can choose to turn the paper in either the horizontal or vertical position to make a picture graph.









Step 4: Print a title at the top, such as Birds Near My House.

Birds Near My House




Birds	Near My	House




Step 5: Have the student draw a picture of each type of bird, as a key for the graph.

Birds Near My House
crow 
robin 
finch 

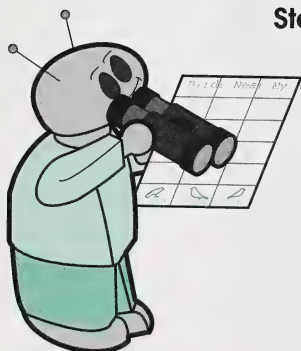
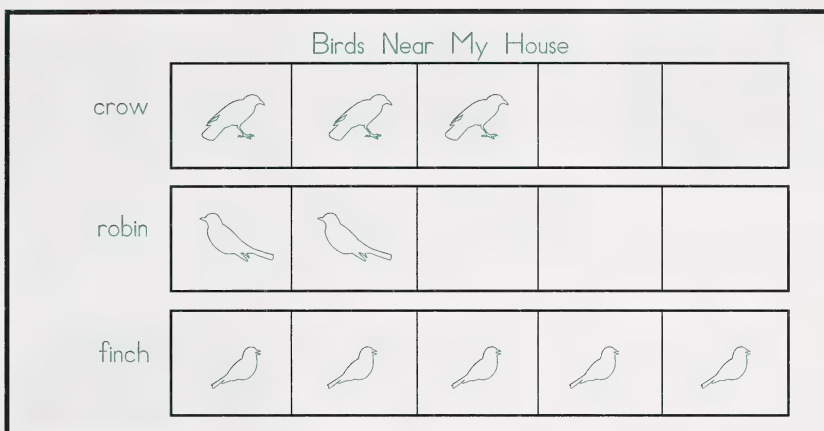
Birds	Near My	House
crow 	robin 	finch 

Step 6: Draw six evenly spaced horizontal or vertical lines across the three sections.

crow 	Birds	Near	My	House
robin 				
finch 				

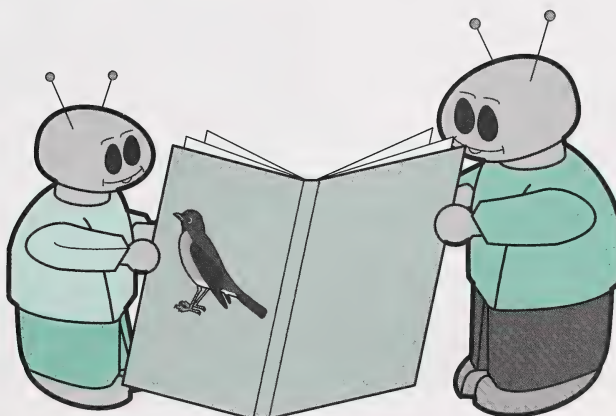
Birds	Near My	House
crow 	robin 	finch 

Step 7: Transfer the information from the tally chart to the picture graph.



Step 8: Have the student say how many were seen of each type of bird, which kind of bird was seen the **most**, and which kind was seen the **least**.

You could extend this activity by researching one particular bird or why some birds are more common in your area than others.



Day 6 • Mathematics

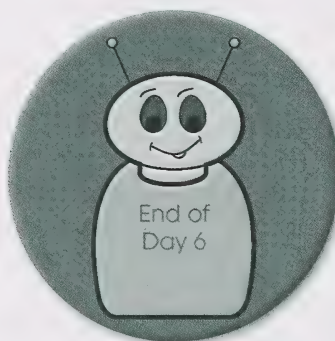
Materials

Mathematics
Assignment Booklet



Turn to Mathematics Assignment Booklet 2A, and complete the assignment for Day 6.

Complete Day 6: Learning Log. Under Student's Thoughts, print a sentence or two telling what the student thinks about this day's mathematics learning, for example, about the ability to read a concrete graph and a picture graph. Is one type of graph easier to read than the other? Why or why not?



Day 7



Calendar Time

Time recommended: 10 minutes

Proceed with Calendar Time activities as usual.

Focus for Today

Time recommended: 45 minutes

- identifying a set with one fewer object than another set
- making a set with one fewer object
- constructing subtraction number sentences



Vocabulary (spoken only)

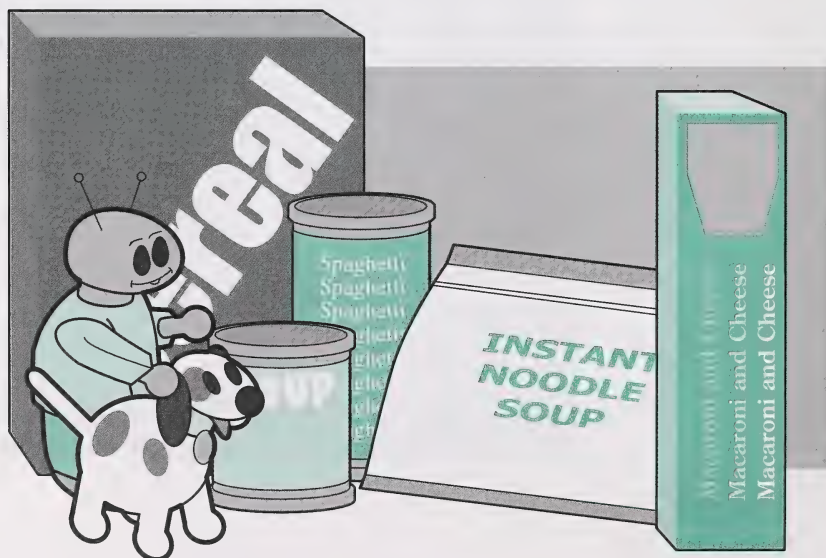
subtraction/subtract/subtracting
less/fewer
minus
take away
difference
left over
strategy
remainder
characters

phrase
none
before
after
act out
operation
minus sign
difference between
answer
remaining



Materials Required

- five food items, such as those shown below
- collections of counters, such as pennies, bingo chips, and various kinds of toys



Remember to keep materials for future activities.

Activities

Teaching Tip



Today, you will introduce your student to the concept of **subtraction**. The student will use the terms **less**, **fewer**, **minus**, **take away**, **subtract**, **difference**, and **left over**.

Observe while the student acts out and records subtraction number stories, and comment on your observations later in Day 7: Learning Log. Does your student do any of the following?

- use the **strategy** of counting backward by ones to find the **remainder**

I had 5 bears. I gave 3 to Nadine. How many do I have left?

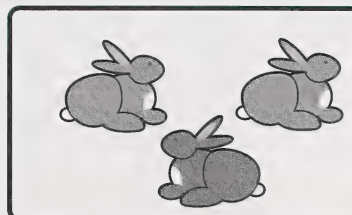
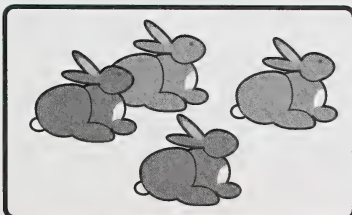
This is how I will figure out the answer. I know there were 5 bears. I see the 3 that were given away. I will count backward from 5—4, 3, 2. So, I know there are 2 bears left.

I will count how many bears are left, just to be sure that I am correct.

- realize that adding the take-away number to the remainder results in the original number

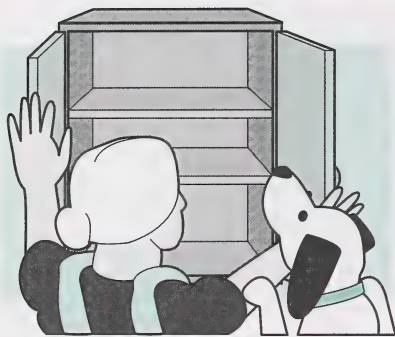
For example, $5 - 2 = 3$ and $2 + 3 = 5$.

- describe actions with the terms *less*, *take away*, *subtract*, *difference*, and *left over*



Developing the Concept

Read the following rhyme with your student.



Old Mother Hubbard

Old Mother Hubbard
Went to the cupboard
To fetch her poor dog a bone;
But when she got there,
The cupboard was bare,
And so the poor dog had none.

Then use the following script.



The **characters** in this picture are Old Mother Hubbard and her dog.

Point to Mother Hubbard, and then point to her dog.

What do you think the **phrase** "the cupboard was bare" means? (Help the student if necessary.)

What does the phrase "so the poor dog had none" mean? (Accept any reasonable answer.)

What number means the same as the word **none**? (0)

How do you think the two characters feel about having no food in the cupboard? (Any answer is acceptable.)

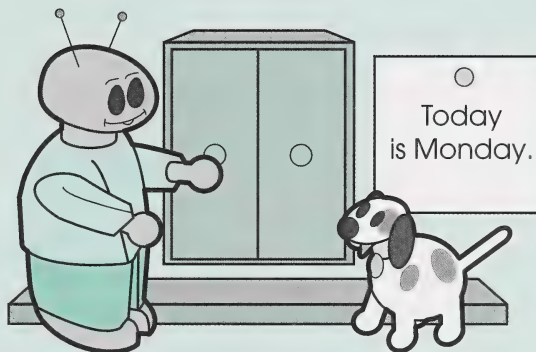
Activities

Teaching tip



Chant or sing the following to the tune of "Here We Go 'Round the Mulberry Bush."

**This is the way we go to the cupboard,
go to the cupboard, go to the cupboard.
This is the way we go to the cupboard
For supper on Monday night.**



**There are five items in the cupboard,
in the cupboard, in the cupboard.
There are five items in the cupboard
Before supper on Monday night.**



**After we eat one can of soup,
one can of soup, one can of soup.
After we eat one can of soup
There are four items left in the cupboard.**



Ask the student to help you select five food items to place in an empty cupboard or on a table. Then **act out** the following dialogue.

This is what Old Mother Hubbard had on her shelf on Monday. Show the five items on the shelf.

How many food items did she and her dog have to eat? (5)

They ate 1 item on Monday night.

Point to the food item that Old Mother Hubbard and her dog ate, and then take that item off the shelf.

How many food items are there now? (4)

Give the student a piece of paper and a pencil.

You can make a number sentence to show what you did.

When you **take away** something from a set, you **subtract** one number from another. This **operation** is called **subtraction**.

Print the word **subtraction** at the **top** of your piece of paper. Help the student if necessary.

To show that you are **subtracting**, you will use a **minus sign**. (–) Show how to make a minus sign on the piece of paper.

When you subtract, you take away one number from another number and you find the **difference between** the 2 numbers.

The word **difference** means what is **left over**.



How many food items were in the cupboard before you took 1 away? (5)

How many did Old Mother Hubbard and her dog eat on Monday night? (1)

Another way to ask this question is, "How many did Old Mother Hubbard take away?" (1)

Count how many food items are left, so you know what the **difference** is. (4)

Print the number sentence $5 - 1 = 4$ on a piece of paper, and ask your student to say the sentence aloud.

Have the student say the answer, or the difference, in a complete sentence, such as, "There are four food items left over, or remaining, in the cupboard." Then continue subtracting.

On Tuesday night, Old Mother Hubbard ate another food item from the cupboard.

Print the number sentence that shows this subtraction operation. ($4 - 1 = 3$)

Encourage the student to say the complete subtraction number sentence, "Four take away one equals three." Then ask the student to give the answer, or difference, in a complete sentence, "There are three things left in the cupboard."

Continue to act out the Old Mother Hubbard story until Friday night, when the cupboard is bare. Follow the same subtraction procedure as the one used for Monday and Tuesday.



Applying the Concept

Have the student act out the following rhyme by showing corresponding counters or finger sets. After each leaf blows away, point out that there is now one fewer leaf, and print a number sentence to match the subtraction situation.

$$5 - 1 = 4$$

Five little leaves hanging on a tree—
Whish! went a big wind, and then there were four.



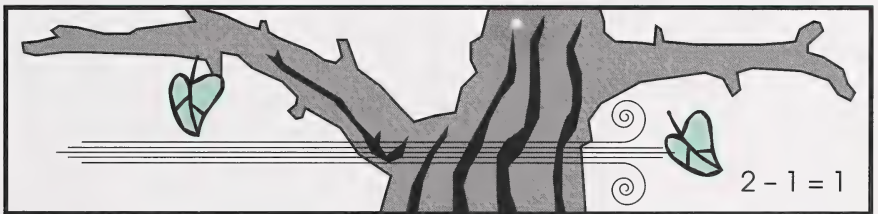
Four little leaves hanging on a tree—
Whish! went a big wind, and then there were three.



Three little leaves hanging on a tree—
Whish! went a big wind, and then there were two.



Two little leaves hanging on a tree—
Whish! went a big wind, and then there was one.



One little leaf hanging on a tree—
Whish! went a big wind, and then there were none.



Repeat the verse several more times. Each time, vary the number of leaves that are blown away by the wind. An example follows.

Five little leaves hanging on a tree—
Whish! went a big wind, and then there were
three.



Help the student print a number sentence to match each new subtraction situation. Discuss how many fewer leaves there are than there were before.

Continue until the student has practised the operation of subtraction and the concept of fewer with a variety of numbers.

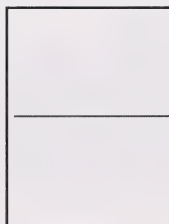
Enrichment (optional)

1. One Fewer Number Booklet

This optional activity could take the student more than one day to complete. The student can draw pictures, glue cut-out pictures, or use stickers to show subtraction operations.

Step 1: Ask the student to fold an unlined piece of paper in half.

Unfold the paper, and use a pencil to draw a line on the crease.



Step 2: On the top half of the paper, have the student show a number of objects up to five.

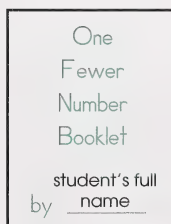


Step 3: On the bottom half of the paper, have the student show one fewer object.

Step 4: Below the smaller number of objects, have the student print the number sentence that matches the subtraction illustration.



Step 5: When the student has completed five subtraction illustration pages, have the child create a cover page. Attach it to the five subtraction pages to make a booklet.



Step 6: Encourage the student to read the One Fewer Number Booklet to family and friends.

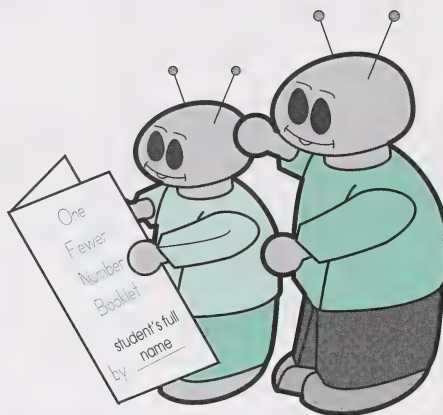


Materials

Student Folder

123

If the student does make a One Fewer Number Booklet, you could put it in the Student Folder for submission on Day 9. If so, ask the student to print the abbreviated form of the module and day numbers (M2D7) on the back of the booklet.



2. Addition and Subtraction Rhymes

Use traditional rhymes to act out the concepts of *more* and *fewer* and the operations of *addition* and *subtraction*. For example, the following rhyme could be used to show the concept of *more*.

Two little monkeys, sitting in the tree
Were joined by another, and that made three.



Three little monkeys in the tree did play.
They chattered and chattered in a happy way.

Three little monkeys, wishing for one more;
Another came to join them, and that made four.



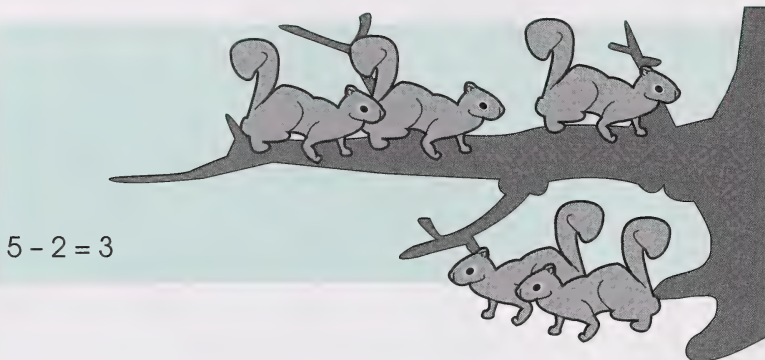
Monkeys, monkeys, how many do I see?
Four little monkeys, sitting in a tree.

Have the student hold up the appropriate number of fingers for each verse.

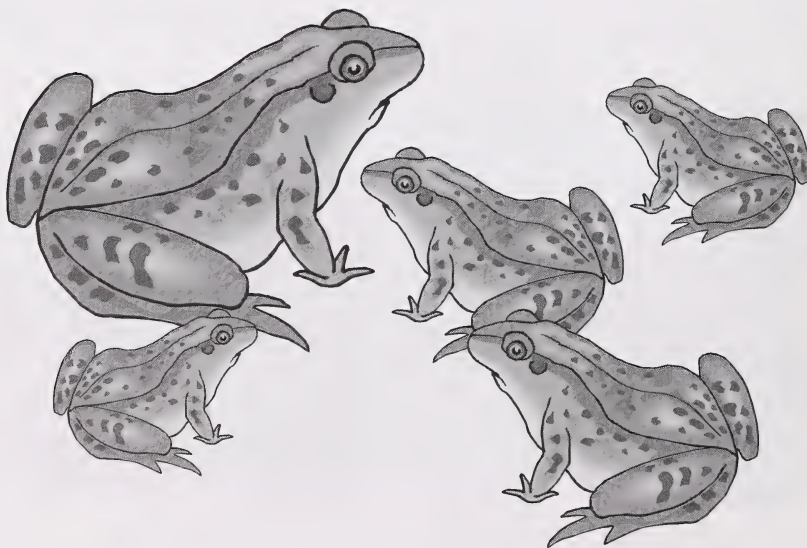


The previous rhyme could also be adapted to teach subtraction.

Five little squirrels, sitting in a tree.
Two went home, and then there were
three.



There are other rhymes that could be used or adapted to teach the concepts of *more* and *fewer*. For example, instead of Five Funny Speckled Frogs, you could substitute Five Funny Clowns and adapt the words in the following verse to match the title.



Five Funny Speckled Frogs

Five funny speckled frogs
Sat on a spotted log,
Eating the most delicious bugs,
YUM, YUM!
One jumped into a pool,
Where it was nice and cool.
Then there were four
Funny speckled frogs.

Four funny speckled frogs ...

Three funny speckled frogs ...

Two funny speckled frogs ...

One funny speckled frog
Sat on a spotted log,
Eating the most delicious bugs,
YUM, YUM!
He jumped into the pool,
Where it was nice and cool,
Then there were no more
Speckled frogs!

You can use actions to illustrate this rhyme. Hold out one arm for the log, and place five fingers of the other hand on top. Jump with your hand into the pool, and return the hand with the appropriate number of fingers for each verse. Rub your tummy for “YUM, YUM!”

Five Little Ducks

Five little ducks went swimming one day
Over the pond and far away.
Mama Duck said, “Quack, quack, quack,”
And only four little ducks came
swimming back.

Four little ducks ...

Three little ducks ...

Two little ducks ...

One little duck ... And no little duck
came swimming back.

Mama Duck went swimming one day,
Over the pond and far away.
Mama Duck said, “Quack, quack, quack,”
And five little ducks came swimming
back!

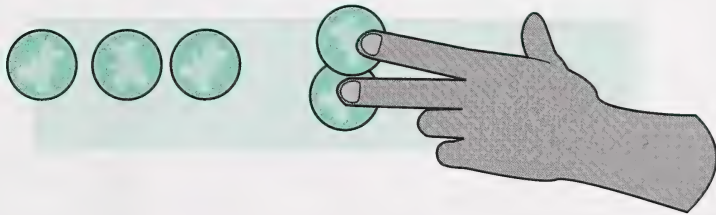
For matching actions, hold up the appropriate number of fingers
for each verse. Put your palms together to “quack.”



3. Counter Subtraction

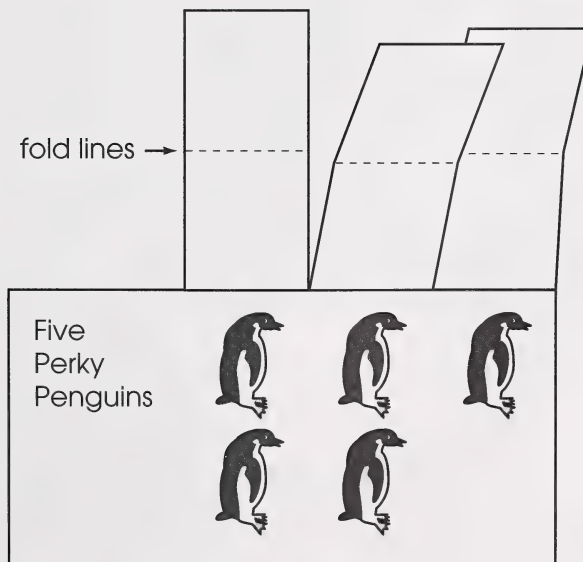
Give the student five counters, such as pennies. Take turns telling stories and solving subtraction problems similar to the following.

You have 5 pennies and you lose 2 of them.
How many do you have left?



4. Five Perky Penguins

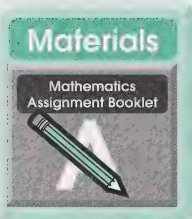
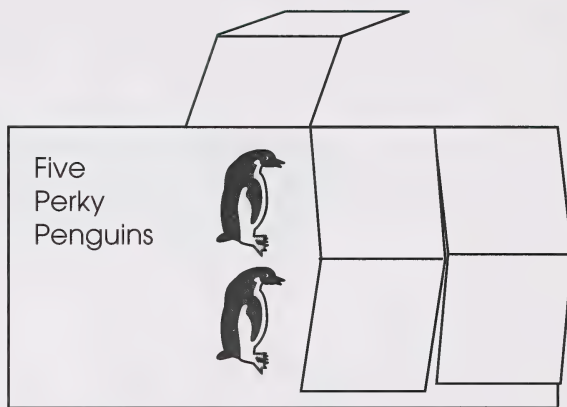
Have the student help you make a cover-up booklet similar to the one shown below. You could draw pictures, cut out pictures, or attach stickers for five penguins or other animals of the child's choosing.



Encourage the student to create a story. Turn down the correct part of the book to show each stage of the story.

3 penguins went for a swim.

2 penguins were left on the shore.



Turn to Mathematics Booklet 2A, and follow the directions to do the assignment for Day 7.

Complete Day 7: Learning Log. Under Student's Thoughts, print a sentence or two telling what the student thinks about this day's mathematics learning. For example, is it easy to make a set with one fewer member? Why or why not?



Day 8



Calendar Time

Time recommended: 10 minutes

Proceed with Calendar Time activities as usual.

Focus for Today

Time recommended: 45 minutes

- finding **sums** and **differences** to five



Vocabulary (spoken only)

sums
differences
explore
subtraction
addition

act out
left (as in left over)
answer
last
total

Materials Required

- food items, such as four cans of soup and three cans of beans
- large saucepan
- five small toy monkeys or other toy animals
- books about subtraction (optional)



Activities



Today, your student will continue to **explore** the concept of **subtraction** and review the concept of **addition**.

Several subtraction and addition terms will be referred to in a variety of situations that will further the student's understanding of these concepts.

Developing the Concept

Act out this activity with some canned food items and a saucepan. The script refers to four cans of soup and three cans of beans. If these are not available, change the wording to match food items that you have.



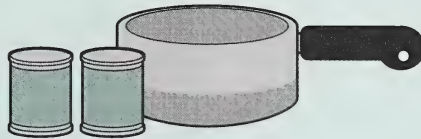
Activities

Teaching Tip



While the student is making soup, you could create a song or sing the following one to the tune of "Here We Go 'Round the Mulberry Bush."

**I am making a pot of soup,
A pot of soup, a pot of soup.
I am making a pot of soup
With two cans of soup.**



**First there were four cans in the cupboard,
In the cupboard, in the cupboard.
First there were four cans in the cupboard.
Now there are only two.**

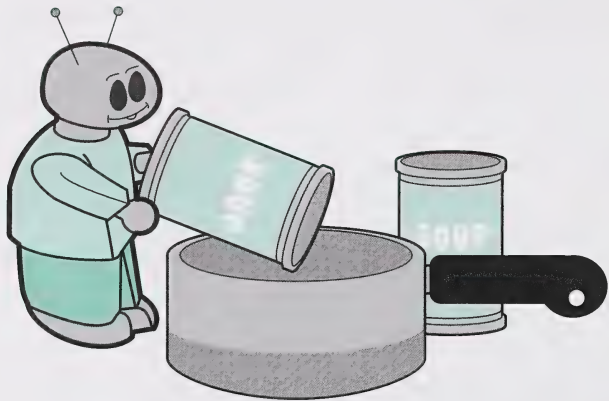




One day, Mother Hubbard made a pot of soup for herself and her dog.

She found 4 cans of soup in her cupboard. She took 2 cans of soup and put them in a saucepan. Have the student pretend to put two cans of soup into the saucepan.

How many cans of soup were **left** in the cupboard?



Give the student a piece of paper to record the first half of a number sentence, and use the following script.

There were 4 cans of soup in the cupboard. 2 cans of soup were taken away.

The **first half** of the number sentence would say $4-2$.

Print the **first half** of your number sentence on the paper.

What is the **answer** to the problem $4-2$?

Count the cans of soup that are still in the cupboard to help find the answer.

When you have the answer, finish your number sentence. Wait while the student prints.

$4 - 2 = 2$. That is correct.

Let's go on with the story.

Mother Hubbard found 3 cans of beans in her cupboard and put 2 cans in the soup. Have the student pretend to put two cans of beans into the saucepan.

How many cans of beans were left in the cupboard?

Print the number sentence $3 - 2 = 1$.

Continue this activity until you and the student are satisfied that enough ingredients have been added to your pretend soup.

Applying the Concept

Activities

Thinking To



During the next activity, you could sing or chant the rhyme rather than say it.





Five Little Monkeys

Get out five small toy monkeys or other toy animals to use as counters. Change the words in the rhyme to match any other counter that is used, for example, “Five Little Teddy Bears.”

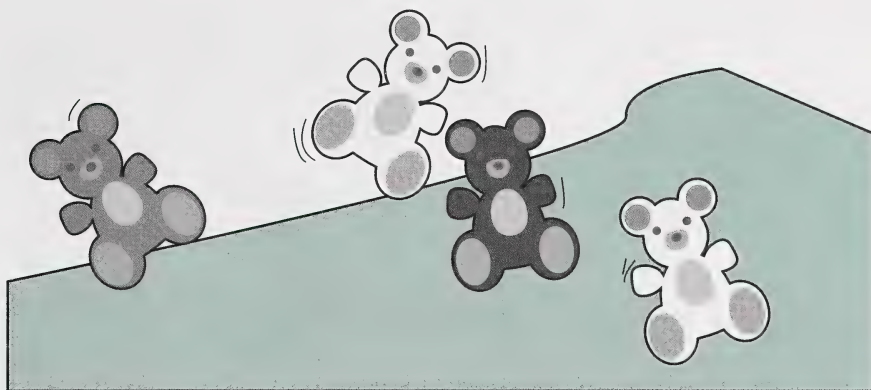
Step 1: Read the rhyme below.

Five Little Monkeys

**Five little monkeys jumping on the bed.
One fell off and bumped his head.
Mother called the doctor, and the doctor said,
“No more monkeys jumping on the bed.”**



Step 2: Use the toy counters to act out the first verse and determine how many are left for the next verse.



Step 3: Continue having the student act out each subtraction situation.

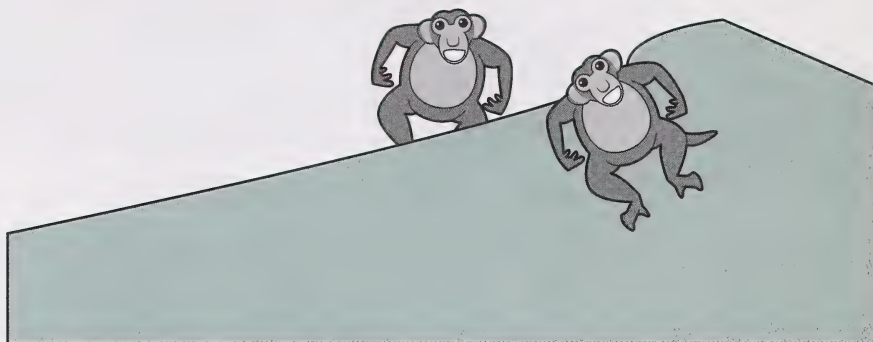
You could vary the number of animals that fall off to two or three, as in the following example.

**Four little monkeys jumping on the bed.
Two fell off and bumped their heads.
Mother called the doctor, and the doctor said,
“No more monkeys jumping on the bed.”**

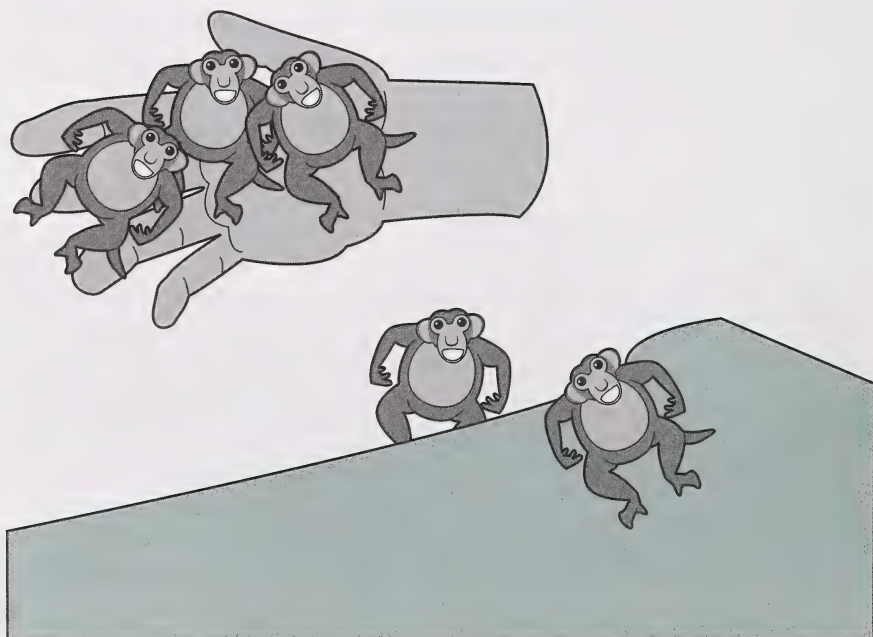


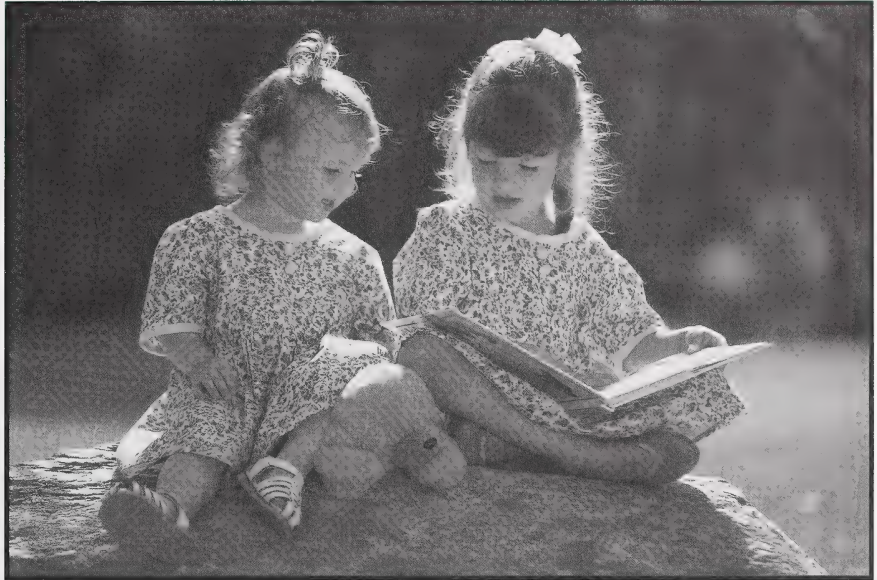
Step 4: When you reach the verse with the **last** monkey, reword it so the student can act out adding stories.

One little monkey jumping on the bed.
She jumped so high, she bumped her head.
She laughed and laughed, and then she said,
“There is room for one more monkey
Jumping on the bed.”



Step 5: Challenge the student to add and subtract different numbers from the bed.





Enrichment (optional)

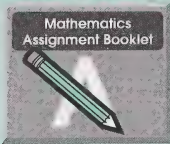
Books About Subtraction

The following are books from the Additional Resources list at the beginning of this module. They deal with the concept of subtraction. You could search out these books at your local library to enhance your student's understanding of subtraction.

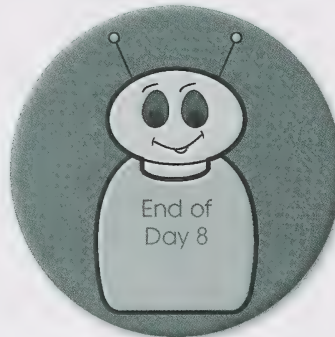
- Bang, Molly. *Ten, Nine, Eight*. 1983.
- Carle, Eric. *Rooster's Off to See the World*. 1987.
- Gackenbach, D. *A Bag Full of Pups*. 1983.
- James, S. *The Day Jake Vacuumed*. 1989.
- King, Phyllis. *The Hungry Cat*. 1986.
- Noble, T.H. *The Day Jimmy's Boa Ate the Wash*. 1980.
- Rees, Mary. *Ten in a Bed*. 1988.
- West, Colin. *Ten Little Crocodiles*. 1988.



Materials



Turn to Mathematics Assignment Booklet 2A, and follow the directions to do the assignment for Day 8.



Day 9



Calendar Time

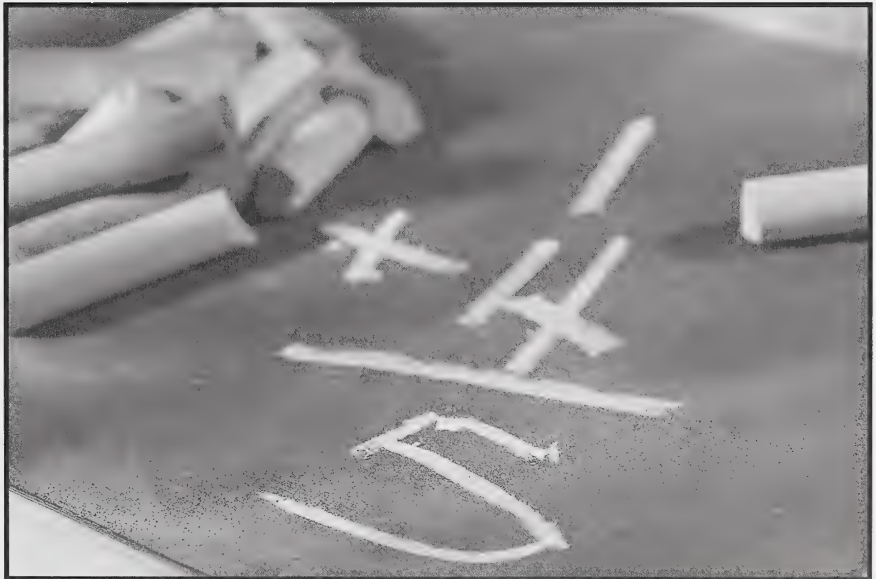
Time recommended: 10 minutes

Proceed with Calendar Time activities as usual.

Focus for Today

Time recommended: 45 minutes

- finding differences to four
- reviewing sums to five



Vocabulary (spoken only)

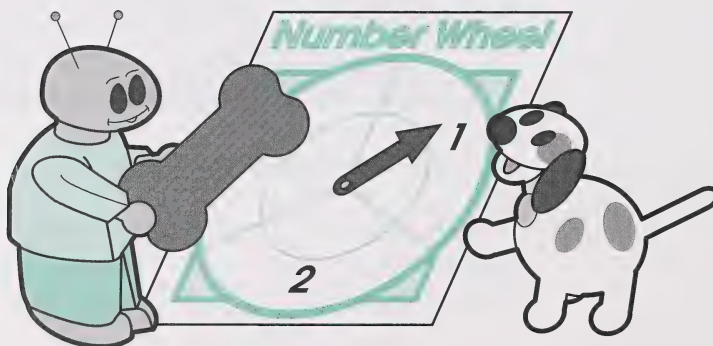
subtraction
remainder
addition

predict/prediction
verify
counting backward strategy



Materials Required

- one old sock and material to make it into a puppet, such as lace, buttons, wool, and felt markers
- construction-paper dog bones, cut out in advance
- five paper lunch bags (optional)
- number wheel (This may have been made in Module 2, Day 3. If not, make one using the directions from Day 3: Enrichment.)
- collection of small toy animals or other counters



Activities

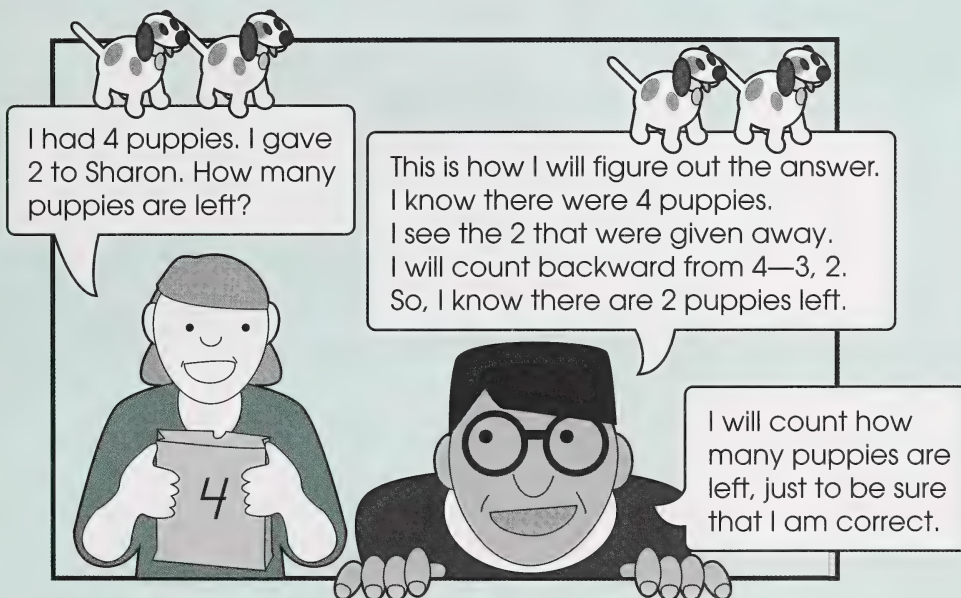
Teaching Tip



Today, you will continue the concept of **subtraction** and review sums to five.

Observe while your student acts out and records differences to five. Does the student do any of the following?

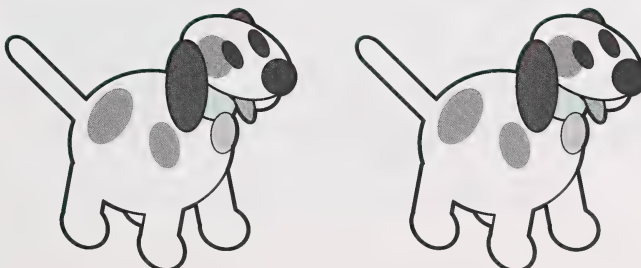
- **count backward** by ones to find the **remainder**



- realize that adding the take-away number to the remainder results in the original number

For example, $5 - 2 = 3$ and $2 + 3 = 5$.

- use subtraction terms to describe actions



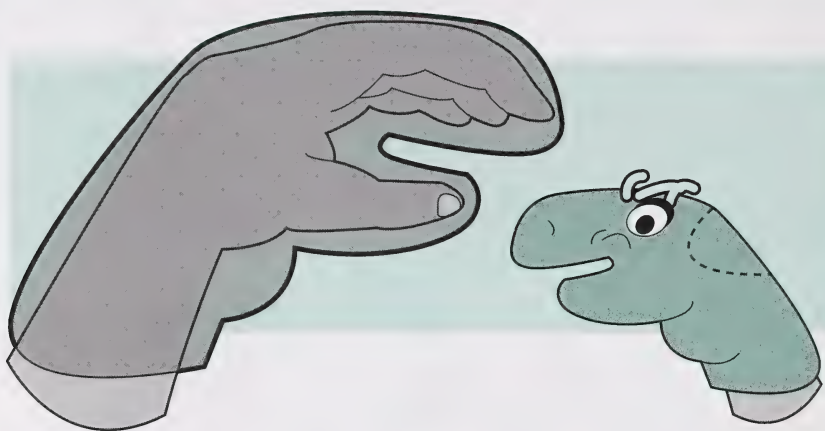
Developing the Concept

Give the student an old, clean sock and instruct as follows.



You will make a hand puppet with this sock.

Put the sock on your hand. Tuck the toe back between your fingers and thumb. **Demonstrate.**



The student can use a variety of materials to give the puppet hair and a face. See suggestions in Materials Required.

Then give the student four of the paper bones that you cut out earlier. Instruct as follows.

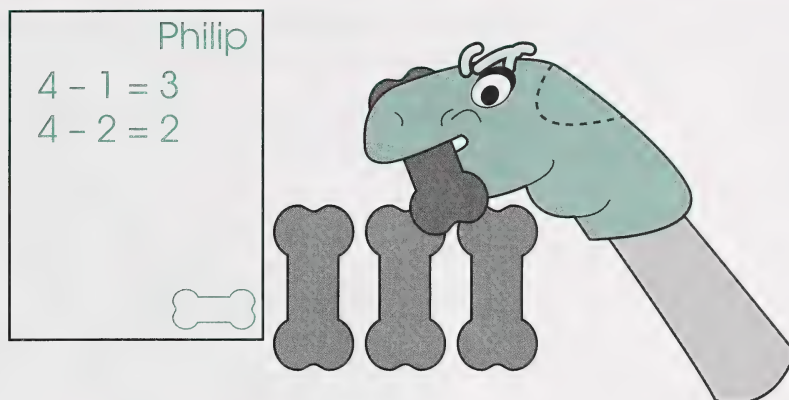
How many **subtraction** and **addition** number sentences can you make with 4 bones?

Have your puppet pick up 1 of the 4 bones.

You made the number sentence $4 - 1 = 3$.

Have the student record the number sentence on a sheet of paper. See how many subtraction and addition number sentences the student can think of using the four bones.

Save the puppet and bones for future use.



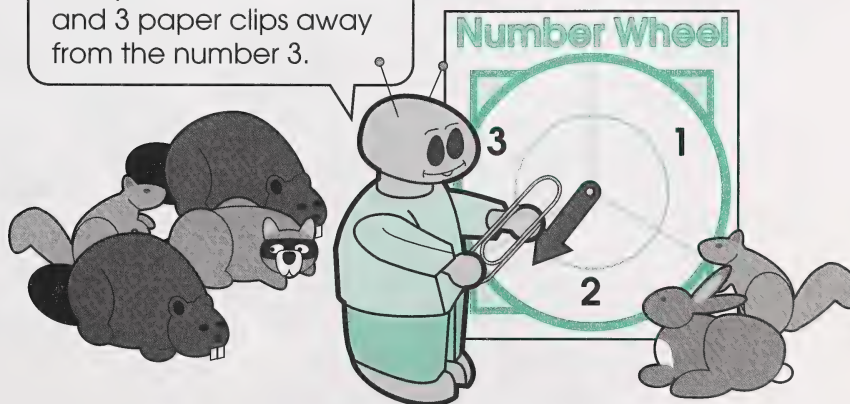
Applying the Concept

Add and Subtract Game

Step 1: Have the student spin the arrow on the number wheel and take the number of counters that the arrow indicates.

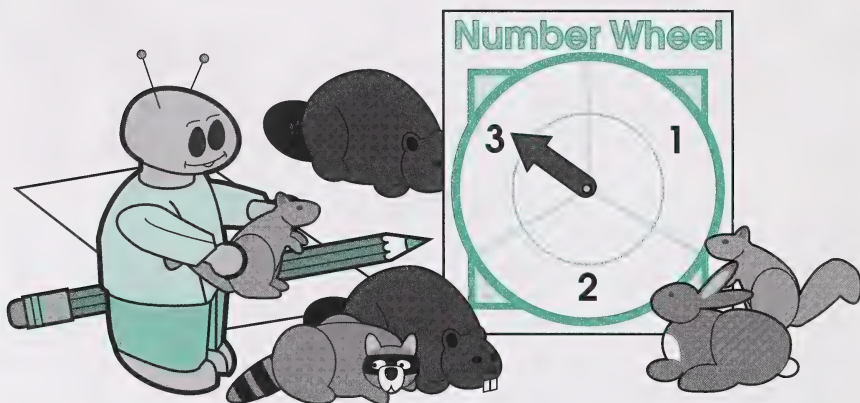
If the arrow lands about halfway between two numbers, help the student measure—using a non-standard unit, such as paper clips—which number the arrow is closest to. If the arrow is an equal distance from both numbers, have the student spin again.

The arrow is 2 paper clips away from the number 2 and 3 paper clips away from the number 3.



Step 2: Ask the student to spin the arrow again. Add the indicated number of counters to the first set.

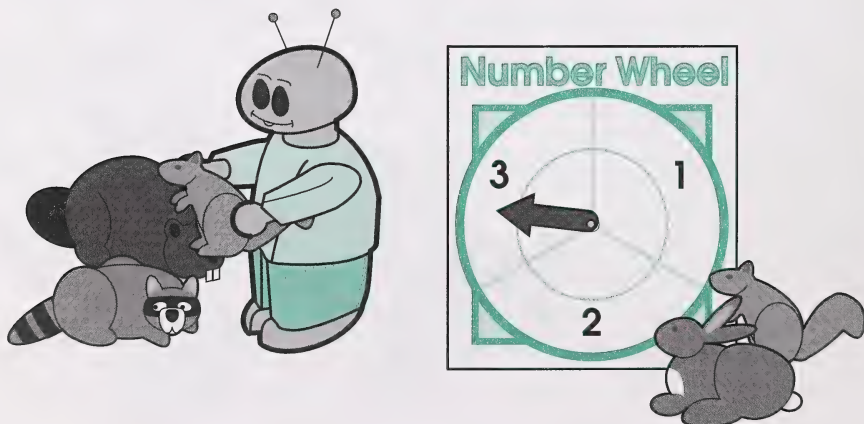
Have the student record the addition number sentence that matches the actions.



$$2 + 3 = 5$$

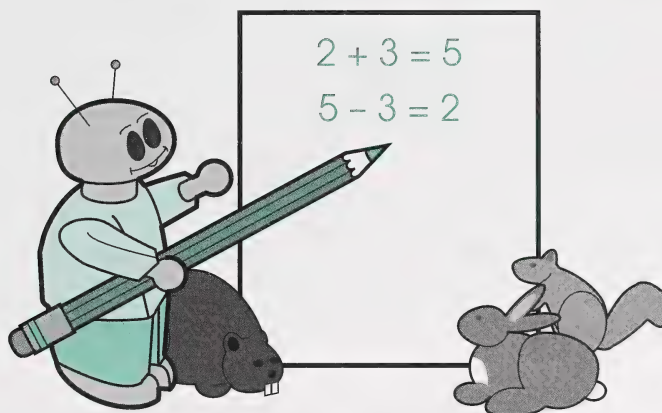
Note that with this number wheel, your student could be challenged with a sum of six.

Step 3: Have the student spin the arrow again. This time, have the student subtract the number of counters shown and record the subtraction sentence.

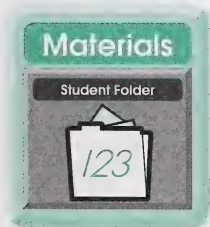
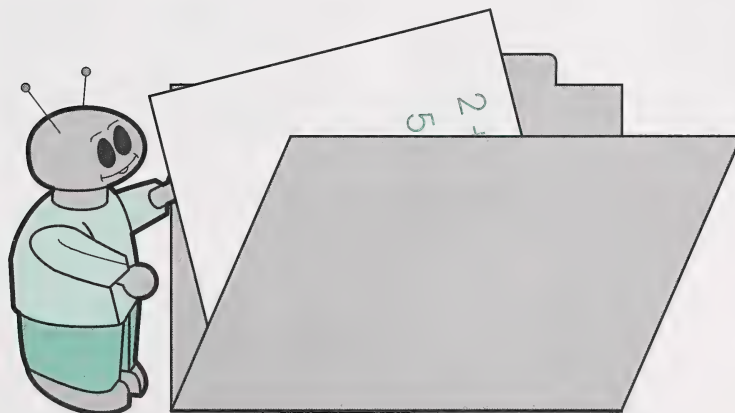


$$5 - 3 = 2$$

Step 4: Record addition and subtraction sentences alternately until the student has practised both of these concepts.



Step 5: Print the student's full name and the abbreviated form of the module and day numbers, M2D9, on the back of the record sheet.



Place this sheet in the Student Folder.



Activities

Teaching Tip



If you do the following activity, observe how your student counts backward, and comment later in Day 9: Learning Log. Does the child do any of the following?

- realize that the last number said is the number left
- count the starting number as one of the take-away numbers
- have difficulty predicting the number in the bag, because the counters cannot be seen

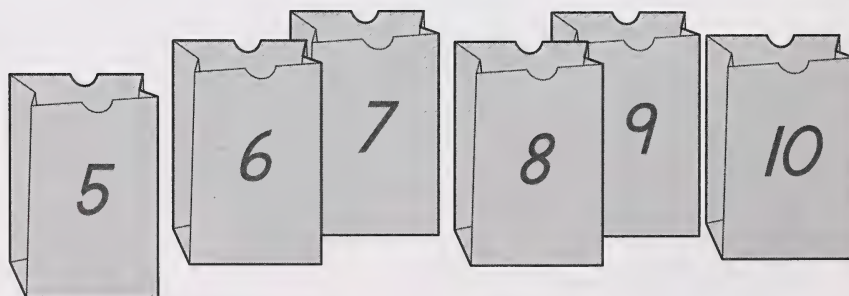


Enrichment (optional)

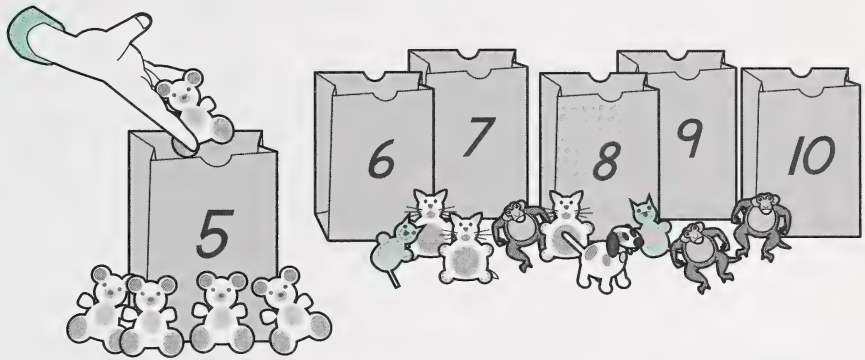
Animals To Give Away

Gather the five paper lunch bags, some toy animal counters, and the number wheel.

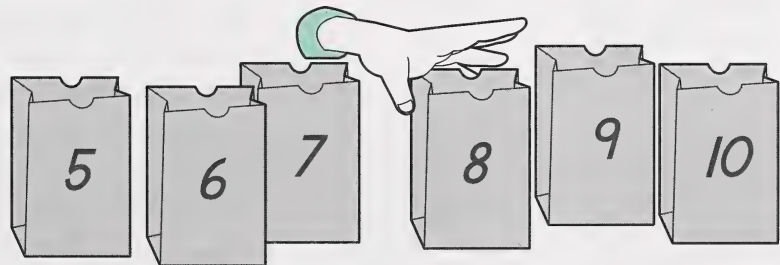
Step 1: Number the bags from 5 to 10.



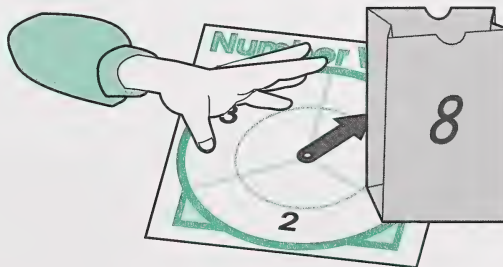
Step 2: Ask the student to place the correct number of counters in each bag.



Step 3: Ask the student to play a person with animals to give away, and have the child choose a numbered bag.



Step 4: Have the student spin the arrow on the number wheel and remove the number of animals indicated.



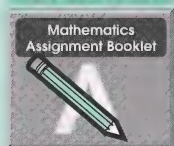
Step 5: Ask the student to **predict** how many animals are left in the bag and explain how the **prediction** was decided. Accept any reasonable answer.

Step 6: Demonstrate the strategy of counting backward. Then ask the student to **verify** the prediction. For example, if the student chose the number five bag and the spinner landed on two, you would count two numbers backward from five.

Step 7: Ask the student to check the prediction by emptying the bag and counting the remaining toy animals.

Step 8: Take turns playing a person with animals to give away, and repeat steps 4 to 7. Encourage each player to use the **counting backward strategy**.

Materials

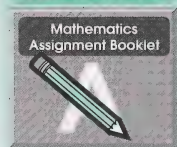


Turn to Mathematics Assignment Booklet 2A, and follow the directions to do Day 9: Assignment 1.

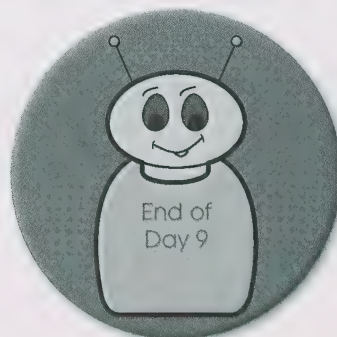
Next, follow the directions to do Day 9: Assignment 2.

Complete Day 9: Learning Log. Under Student's Thoughts, print a sentence or two telling what the student thinks about this day's mathematics learning, for example, about the ability to find differences to four and sums to five.

Materials



At the end of Mathematics Assignment Booklet 2A, follow the directions to complete Day 9, Student Folder Items. Take the required items from your Student Folder. Submit these items to your student's teacher for marking at the time the teacher has requested them.



Day 10



Calendar Time

Time recommended: 10 minutes

If your student is not registered in the accompanying Thematic Program, refer to the Calendar Package for further information. Then proceed with Calendar Time activities as usual.

Focus for Today

Time recommended: 45 minutes

- constructing subtraction number sentences with differences from zero to four
- reviewing of sums to five



Vocabulary (spoken only)

Look for the following words throughout today's lesson. These words are used in context and, if introduced to the student, are spoken only, so it is not necessary to review the list with the child. Students at this level are not required to read, spell, or write words, with the exception of the number words from zero to ten.

difference	left (as in left over)
zero	riddle
all	question
member	problem
set	fewer
empty	answer

Materials Required

- materials on the master list
- dog puppet and bones from Module 2, Day 9
- a bag that the child cannot see through
- collection of counters
- zero to five number cards (optional)
- six paper bags (optional)
- die (optional)

Remember to keep materials such as the cards and small objects for future activities.



Activities

Teaching Tip



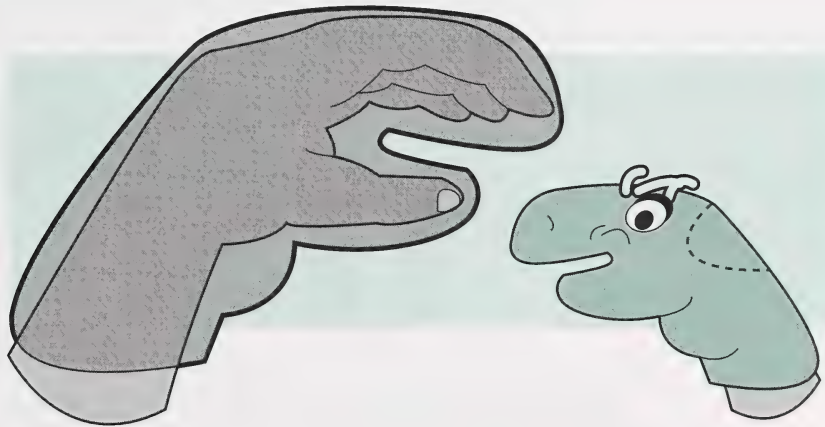
Today, the student will review subtraction problems with differences from 1 to 4 and be introduced to subtraction number sentences with a **difference of zero**. First, review the following information about the number zero.

The number **zero**

- is a number just like **all** other numbers
- tells that a set has **no members**, or the **set is empty**

Developing the Concept

Give your student the dog sock puppet and bones from Day 9. Help the student put the sock puppet on a hand and tuck the toe back into the palm between the fingers and thumb.



Instruct as follows.

Activities

Home Instructor's Script



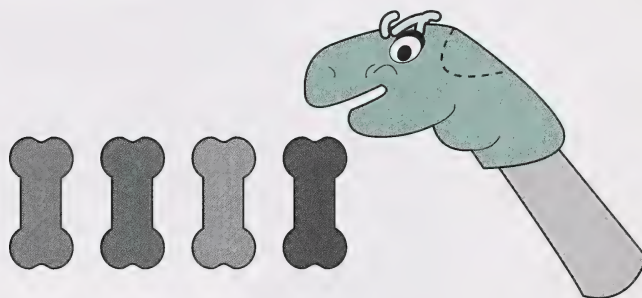
Today, your puppet is very hungry.

Here are 4 bones.

How many of these bones would your dog like to eat?



Have the student use the puppet's mouth to pick up as many of the four bones as desired.



Then ask the student to place the chosen number of bones and the puppet to the side. Give the student an unlined piece of paper and a pencil, and continue the script.

Print the number sentence that tells how many bones your puppet ate.

The student's number sentence will begin with the number 4, such as $4 - \underline{\quad} = \underline{\quad}$.

If the student has not already pretended to eat all four bones, ask the child to have the puppet eat more bones until **all** of them are gone.

Each time the puppet takes some bones, have the student print a number sentence that tells what happened.

Then review as follows.

At the beginning, how many bones did the dog have to eat? (4)

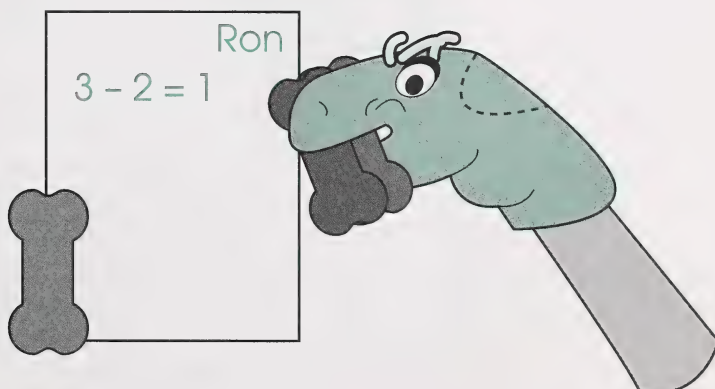
Now your puppet has eaten **all** 4 bones.

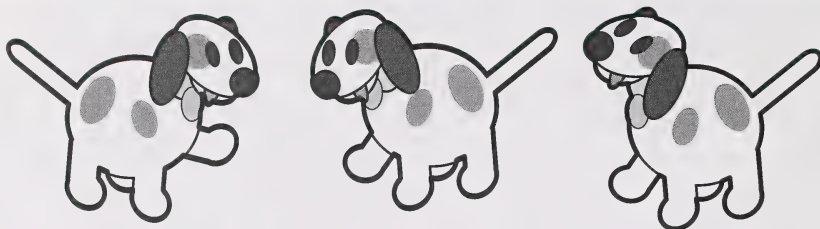
How many bones are **left**? (0)

Print the number sentence that shows how many bones there were at the beginning, how many bones your dog ate in total, and how many bones are left. The student should print $4 - 4 = 0$.

Repeat this activity with three bones, two bones, and one bone.

For each beginning set of bones, have the student choose a number for the puppet to eat until all the bones are gone. Each time the puppet eats some bones, have the student print a number sentence that tells what is happening.





Applying the Concept

Riddles to Be Solved

Begin by asking what a **riddle** is. Encourage the student's personal response. Provide the following explanation if necessary.

A **riddle** is a **question** or a **problem** to figure out.

Secretly place three counters in a bag, and tell the student that you have a riddle about the number of objects in the bag. Continue with the following script.

I will tell you the clues to my **riddle**, one at a time.

After each clue, think about what information you have, and use your counters to show what you know.

The first clue is "I have **fewer** than five counters." Print the clue on a chalkboard or piece of paper.

How many counters could I have in the bag?
The student should show fewer than five counters.

If the student's response indicates confusion with the term **fewer**, then clarify what this word means.

If the student's collection of counters shows the correct number, congratulate the child. Take your three counters out of the bag, and have the student match your set of counters with the student's set.

If the student has shown fewer than five counters but not the correct number, give another clue, such as one of the following.

If you take 1 counter from 4 counters, you get this number.

If you add 1 object to 2 objects, you get this number.

Record each clue on a chalkboard or piece of paper.

Continue this riddle game until the student has practised differences from zero to four and sums to five.

Consider giving the student a pat on the back, a star, a stamp, or a sticker when the activity has been completed with care and effort.



Enrichment (optional)

At this point, your student could need extra help or a challenge. If so, postpone the final assignments and Learning Log until after some Enrichment activities.

Note: Use of optional activities may require you to pace the student's progress to accommodate special needs. For example, you could delay the final assignments until a later day. If so, include a review of the day's work before doing the assignments.

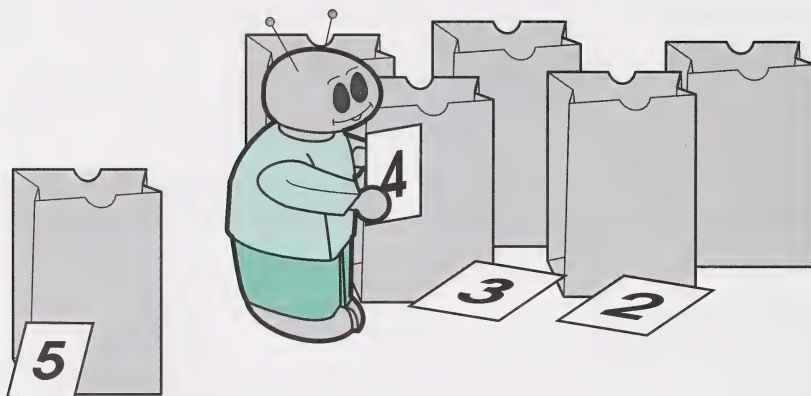
1. Subtract or Add a Number

Step 1: Give the student the following materials:

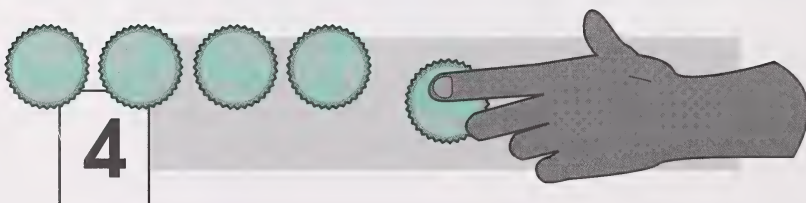
- zero to five number cards
- six paper bags
- several small counters

Step 2: Ask the student to put one number card in each of the six paper bags.

Step 3: Have the student pick a number card from one of the bags and put it on the table.



Step 4: Ask the student to use small objects to make an addition or subtraction number sentence that has the card number as its **answer**. For example, if the number is 4, the student could pick five bottle caps and take one away or choose two paper clips and two pennies and put them together to form a set of four.

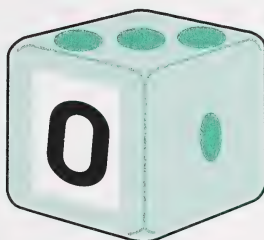


Step 5: Take turns picking number cards until the student has practised constructing number sentences with a given answer up to five.

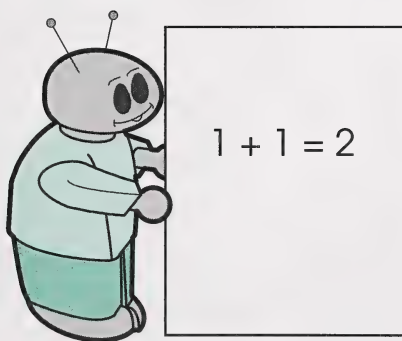
2. Roll a Number Sentence

Step 1: Give the student a die with the numbers 0 to 5 on it. If you do not have a die with the number 0 on it, use masking tape to cover the six dots on a regular die and print the number 0 on the masking tape.

Your student will also need a pencil and a sheet of unlined paper.

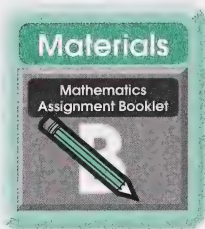


Step 2: Ask the student to roll a number and print a number sentence with that number as the **answer**. For example, if number 2 is rolled, have the student print a number sentence such as $1 + 1 = 2$ or $5 - 3 = 2$. Encourage the student to think of as many number combinations as possible.



Step 3: Take turns rolling a number and printing a number sentence with that number as the answer until the student has practised a variety of number sentences.

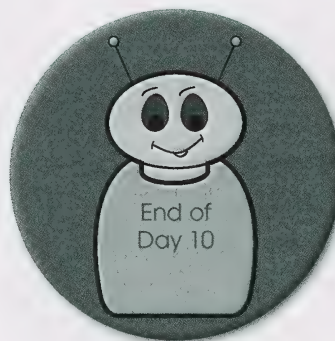
Keep the die for future use.



Turn to Mathematics Assignment Booklet 2B, and follow the directions to do Day 10: Assignment 1.

Next, follow the directions to do Day 10: Assignment 2.

Finally, complete Day 10: Learning Log. Under Student's Thoughts, print a sentence or two telling what the student thinks about this day's mathematics learning, for example, about the ability to construct subtraction number sentences with differences from zero to four.



Day 11



Calendar Time

Time recommended: 10 minutes

Begin your lesson with the calendar procedure as usual and a few additional calendar activities.

Focus for Today

Time recommended: 45 minutes

- finding differences to five
- reviewing sums to five



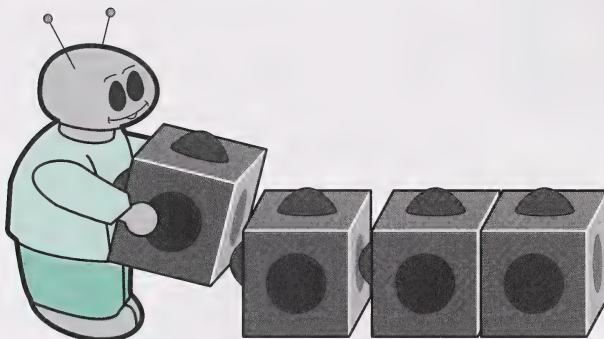
Vocabulary (spoken only)

operation
some
none
letter/letters

secret
word/words
train
tower

Materials Required

- materials on the master list
- interlocking cubes or blocks
- letter cards made by cutting index cards in half
- toy counters or stuffed animals (optional)
- wide masking tape (optional)



Keep materials such as the cards and counters for future activities.

Developing the Concept

Make letter cards for the student's name or the words **smart** or **clever**.

Give the student unlined loose-leaf paper, a pencil, and interlocking blocks. Instruct as follows.



You can see a subtraction **operation** by taking away **some** or **none** of your blocks.

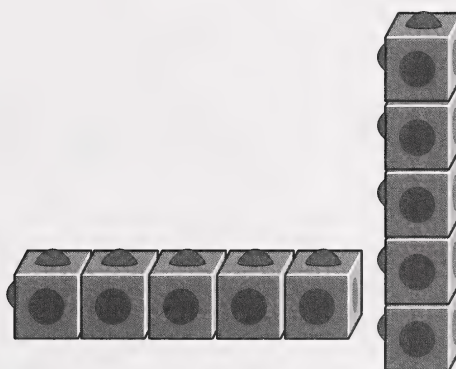
Print a number sentence that matches what you see.

For every number sentence that you get correct, you can get a **letter**.

The **letters** that you get will spell a **secret word** (or **words**).



Have the student make a **train** or **tower** with five interlocking blocks. Take two blocks away. Have the student print $5 - 2 = 3$. Help if necessary.

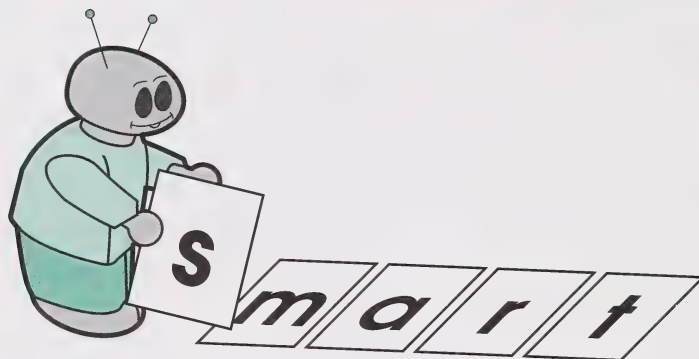


Continue the activity, using a variety of number sentences with differences to five.

For every correct number sentence, give the student a letter card so that a secret word can be spelled out. When the student becomes familiar with the activity, let the child choose secret words and check your number sentences for correctness.

As an alternative activity, have the student do number sentences with sums to five. Again, choose a secret word and give a letter for each correct number sentence.

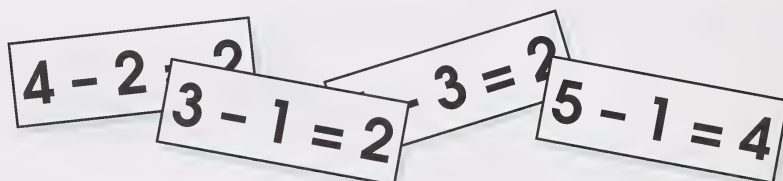




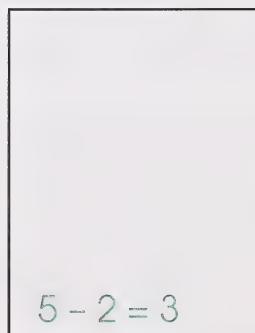
Applying the Concept

My Subtraction Number Booklet

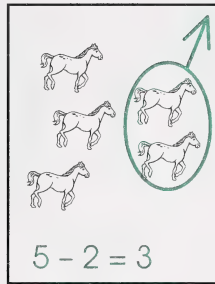
Step 1: Have the student think of a subtraction number sentence that shows a difference up to five.



Step 2: Have the student print the number sentence on an unlined piece of paper. For example, the student might print $5 - 2 = 3$.



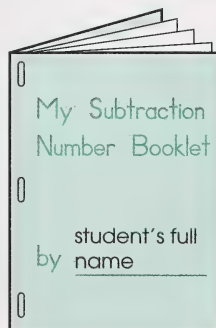
Step 3: Ask the student to draw pictures or cut pictures from magazines to show the subtraction number sentence. Have the student circle the subtraction members and put an arrow on the top of the circle to show which members are being subtracted.



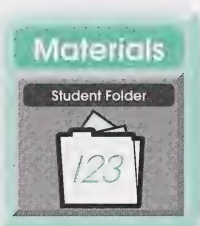
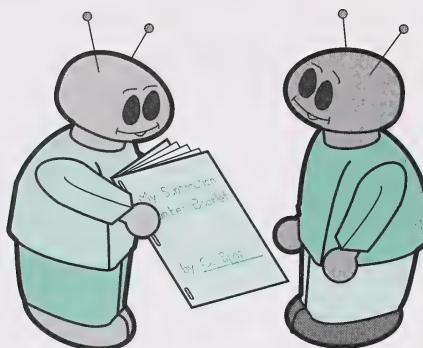
Step 4: Have the student do at least two more number sentences. For example, the student could illustrate $5 - 1 = 4$ and $4 - 3 = 1$.



Step 5: Have the student make front and back cover pages like the ones shown below. Help the student staple the cover pages to the subtraction number stories to make a booklet.



Step 6: Encourage the student read the subtraction number stories to family and friends.



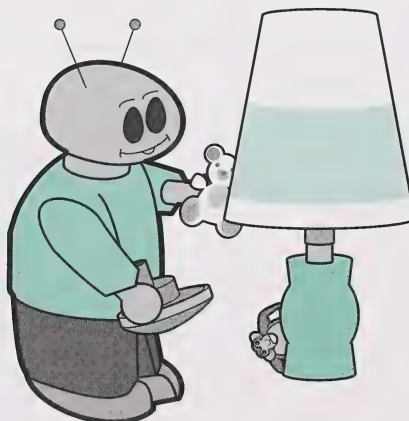
Step 7: Have the student print the module and day numbers, M2D11, on the back of the booklet. Then place the subtraction number booklet in the Student Folder.

Enrichment (optional)

1. Hide and Seek

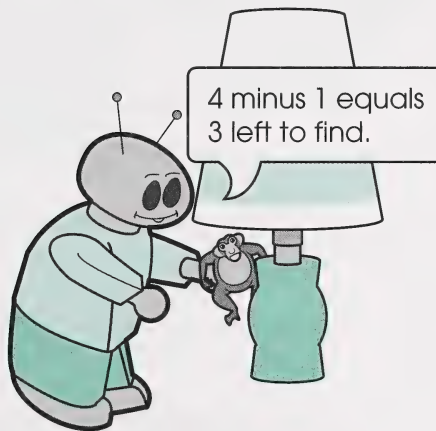
Step 1: Have the student choose five toys, such as bears, horses, and boats.

Step 2: Hide the five toys around the room.

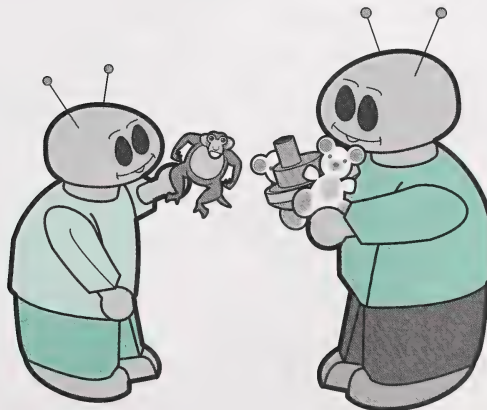


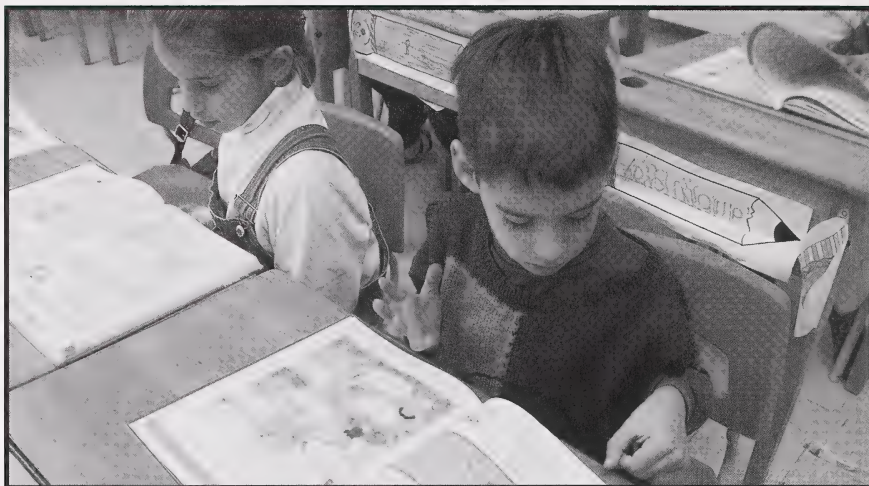


Step 3: Challenge the student to search for the hidden toys. After each is found, have the student say a number sentence that shows how many toys are left to find, for example, five minus one equals four left to find.



Step 4: Take turns hiding toys and saying an appropriate number sentence after each one is found. For example, you could start with four toys instead of five.

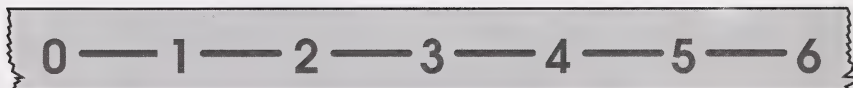




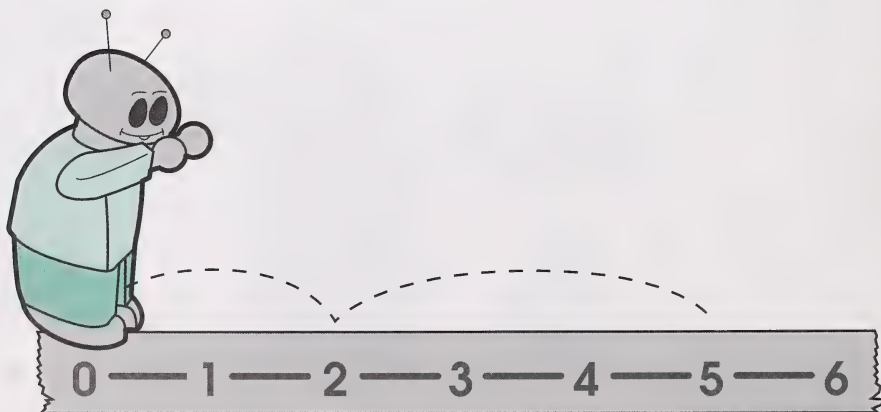
2. Follow Those Directions

Attach a piece of wide masking tape to a convenient place on the floor.

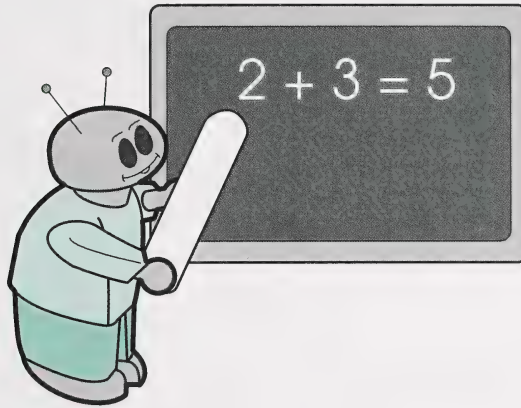
Have the student help you evenly mark out the numbers zero to six on the tape.



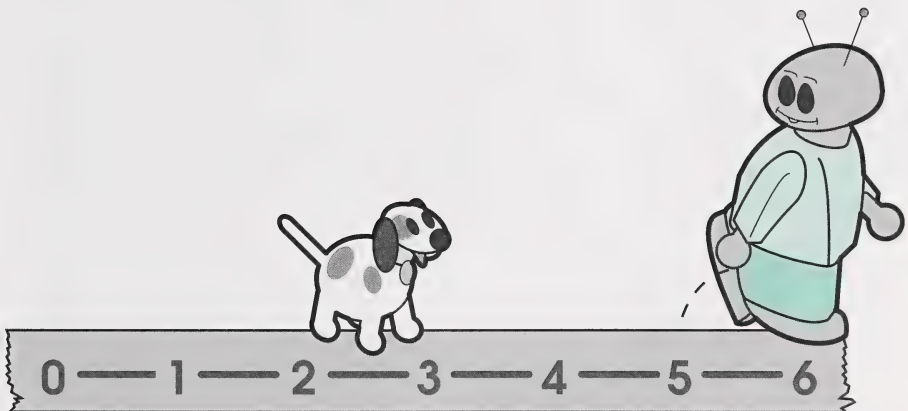
Ask the student to stand at the number zero spot on the number line and make number sentences, based on your directions. For example, you could have the student hop two spaces forward and then another three spaces forward.



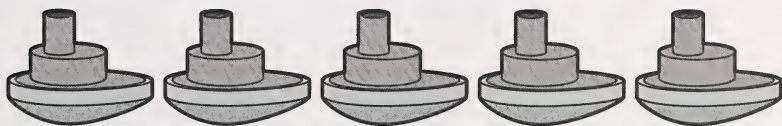
Have the student then tell you the number sentence that was acted out and print it on a chalkboard or piece of paper. In the example, the number sentence would be $2 + 3 = 5$.



To do a subtraction sentence, the student could start at the number six or another number and be directed to move a specific number of spaces backwards.



Take turns giving directions and moving on the number line until the student has practised sums and differences to five.

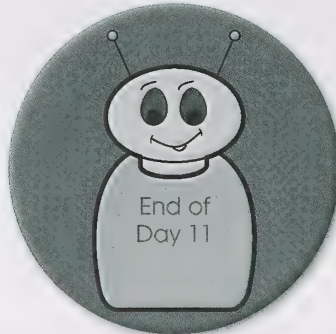


Materials

Mathematics
Assignment Booklet



Turn to Mathematics Assignment Booklet 2B, and follow the directions to do the assignment for Day 11.



Day 12



Calendar Time

Time recommended: 10 minutes

Proceed with Calendar Time activities as usual.

Focus for Today

Time recommended: 45 minutes

- problem solving: constructing number sentences
- reviewing sums and differences to five

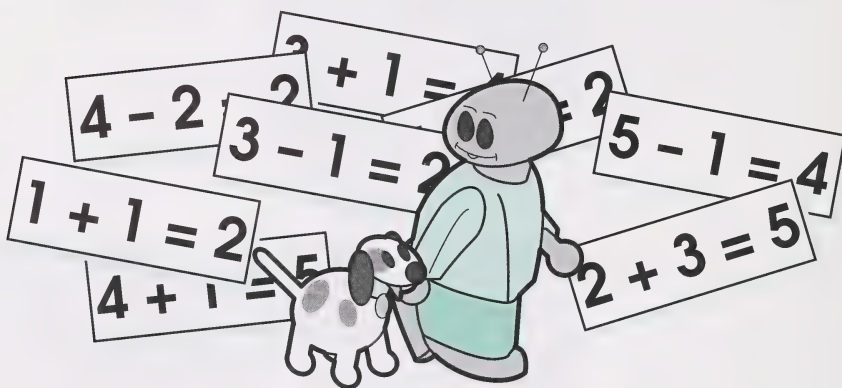


Vocabulary (spoken only)

penny

Materials Required

- materials on the master list
- subtraction number-sentence cards made from index cards
- plain-coloured plate or large plastic lid
- letter cards made from half sections of index cards
- collection of counters
- addition number-sentence cards from Day 4
- two containers
- pennies (optional)



Keep materials such as the cards and small objects for future use.



Today, the student will continue activities that help build subtraction skills and reinforce addition skills.

Observe how the student uses counters to keep track of numbers. Does the student do the following?

- recognize the need to add on or take away
- predict the numbers before using the counters
- get confused when adding or subtracting the number 0

Comment on your observations later in Day 12: Learning Log.





Developing the Concept

For this activity, you could award letters for correct answers, to spell a secret word, such as **fabulous**, **great**, **hot dog**, **awesome**, or **terrific**.

Begin by having the student help make the following subtraction number-sentence cards from blank index cards.

$1 - 1 = 0$	$5 - 2 = 3$
$2 - 2 = 0$	$5 - 3 = 2$
$2 - 1 = 1$	$5 - 4 = 1$
$3 - 2 = 1$	$5 - 5 = 0$
$3 - 3 = 0$	$6 - 1 = 5$
$4 - 2 = 2$	$5 - 1 = 4$
$4 - 3 = 1$	$4 - 1 = 3$
$4 - 4 = 0$	$3 - 1 = 2$

Have the student stack the finished cards. Place several counting objects and the paper plate or plastic lid near the cards.

Pick a card from the stack, but keep it hidden. Using the first number of the number sentence on the card, place that many objects on the plate or lid. For example, if the subtraction card says $5 - 3 = 2$, put five counting objects on the plate or lid.

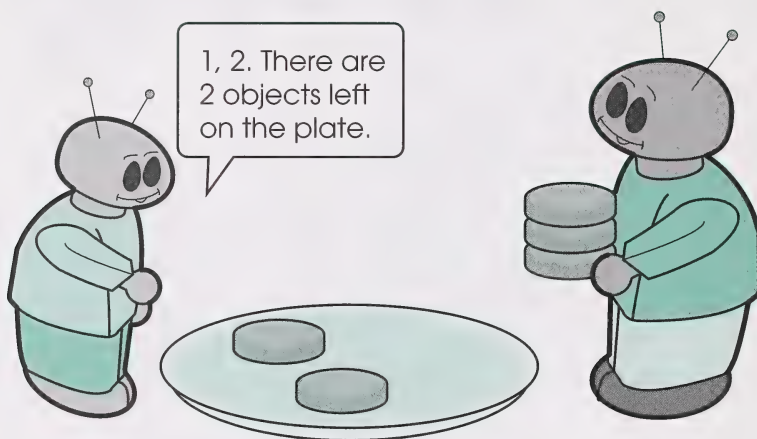
Begin with the following script.



There are 5 objects on the plate.

I will take 3 objects off the plate and put them on the table.

How many objects are left on the plate?



After the student has answered, show your subtraction sentence card. Discuss why the answer is correct or incorrect.

Take turns guessing until all the subtraction number cards have been played. Then act out the addition number-sentence cards from Day 4.

Applying the Concept

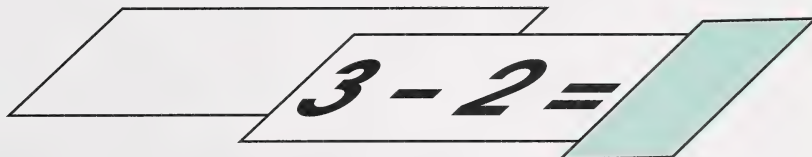
Addition and Subtraction Card Game

The student will need two containers labelled **I know** and **practice**, as well as the subtraction and addition number-sentence cards.

Step 1: Place the subtraction number-sentence cards face down.



Step 2: Turn one of the cards face up and cover the answer. Then show the card to the student.

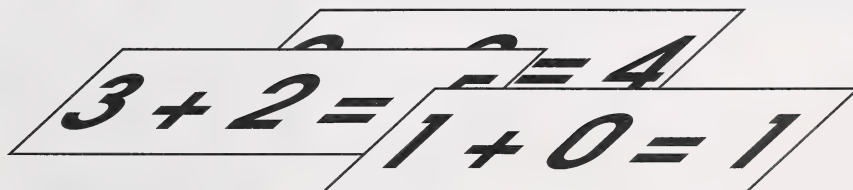


Step 3: If the student doesn't know the answer, say the whole number sentence and place the card in the **practice** container.

Place number sentences that the student knows in the **I know** container. You could also give the student one **penny** for every subtraction card answered correctly.



Step 4: Repeat Steps 1 to 3 using the addition number cards.

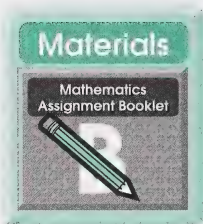


Step 5: Keep the pennies and cards in the containers for future use.

Enrichment (optional)

Books About Addition and Subtraction

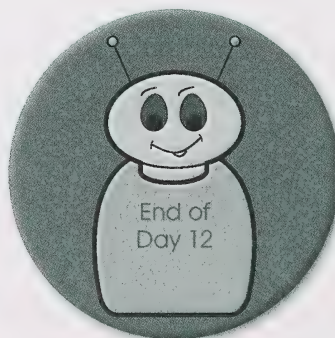
Refer to Additional Resources at the beginning of this module for a list of books that could enhance your student's understanding of the concepts of addition and subtraction.



Turn to Mathematics Assignment Booklet 2B, and follow the directions to do Day 12: Assignment 1.

Then follow the directions to do Day 12: Assignment 2.

Finally, complete Day 12: Learning Log. Under Student's Thoughts, print a sentence or two telling what the student thinks about this day's mathematics learning, for example, about the ability to add and subtract to five.



Day 13



Calendar Time

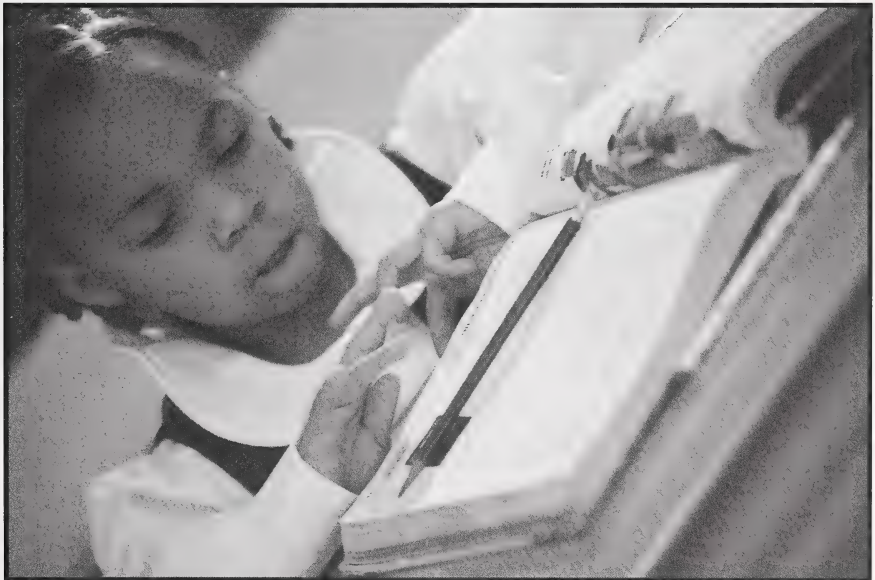
Time recommended: 10 minutes

Proceed with Calendar Time activities as usual.

Focus for Today

Time recommended: 45 minutes

- reviewing sums and differences to five



Vocabulary (spoken only)

vertical
sums
models
properties

number line
whole number sentence
middle
play introduction



Materials Required

- materials on the master list
- plus and minus cards made from blank index cards
- collection of small toy counters
- container large enough to hold the counters
- letter cards made by cutting index cards in half (Some were made in Day 12.)
- wide masking tape
- one clothes hanger (optional)
- ten clothespins (optional)
- five toy animal counters (optional)
- a toy wand or suitable substitute (optional)

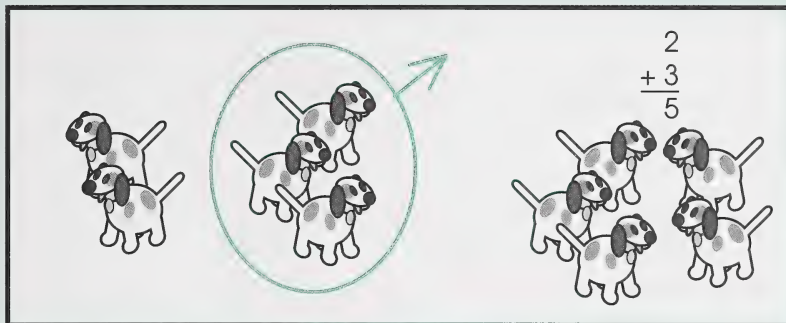


Activities

Teaching Tip



Today, the student will draw pictures to illustrate subtraction number sentences and will review **vertical** number sentences with **sums** to five.

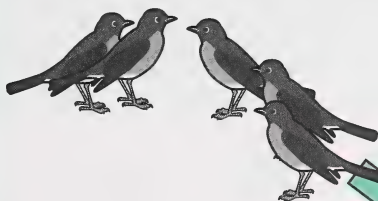


Observe the student's addition and subtraction skills. For example, observe whether the student is

- able to relate personal life experiences and language to addition and subtraction operations
- able to relate addition and subtraction operations to life experiences
- aware of the **models** and **properties** of each operation

Models

Concrete model



Pictorial model



Symbolic model

$$\begin{array}{r} 3 \\ + 2 \\ \hline 5 \end{array}$$

3	+	2
---	---	---

Continued ...

Properties

For the addition number sentences below, both sums are the same, although the numbers being added have been switched around.

$$3 + 1 = 4$$

$$1 + 3 = 4$$

This property does not apply to subtraction.

For example, $3 - 1 = 2$, but $1 - 3$ does not equal 2.

Is the student able to do the following?

- recognize the relationship between operations

For instance, addition and subtraction operations are **inversely related**. What one operation does, the other one undoes. An example follows.

$$2 + 3 = 5$$

$$5 - 3 = 2$$

- recognize number-sentence patterns, such as those shown below

$$2 + 2 = 4$$

$$2 + 3 = 5$$

$$2 + 4 = 6$$

- understand the results of an operation

Comment on your observations later in Day 13: Learning Log.

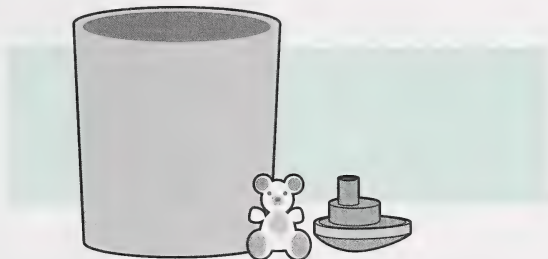
Developing the Concept

Gather the following materials:

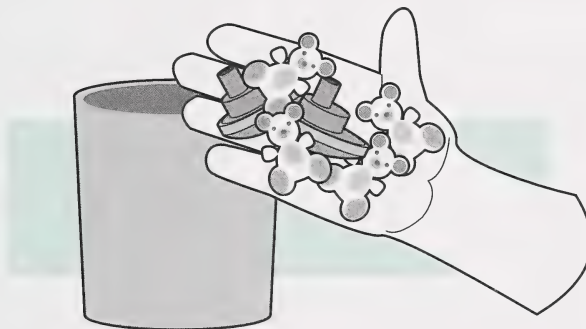
- plus and minus sign cards
- a collection of small toy counters
- a container to hold the toy counters
- blank letter cards made from index cards cut in half

Add or Subtract

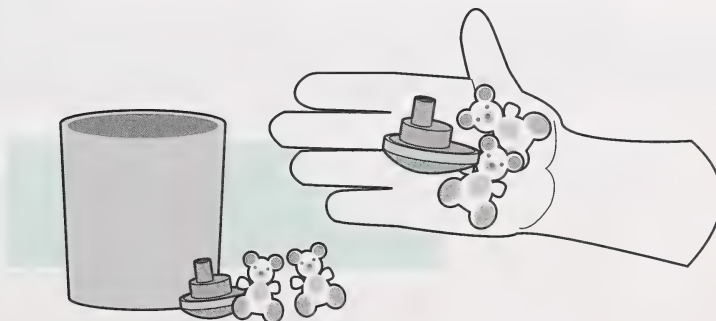
Step 1: Place the toy counters in the container, so that the student can review addition and subtraction number operations with sums and differences to five.



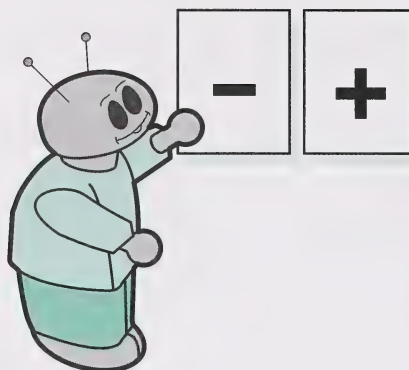
Step 2: Pick some toy counters from the container.



Step 3: Without speaking, show an addition or subtraction operation by adding to or taking away from the toy counters you picked.



Step 4: Have the student point to the sign card that shows what you did, either adding or subtracting the toy objects.

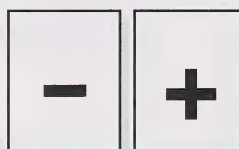


Step 5: For each correct addition or subtraction choice, give the student a letter card to spell out a secret word, such as **great**, **fantastic**, or **awesome**. After your student becomes familiar with the activity, let the child select secret words and check that you choose the correct sign.



Step 6: Continue until the student has practised a variety of addition and subtraction operations with sums and differences to five.

Step 7: Keep the plus and minus sign cards and letter cards for future use.



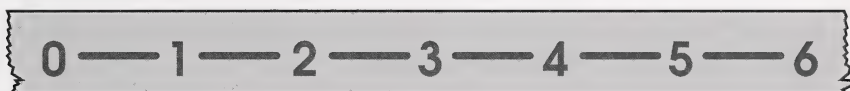
Applying the Concept

Follow Those Directions

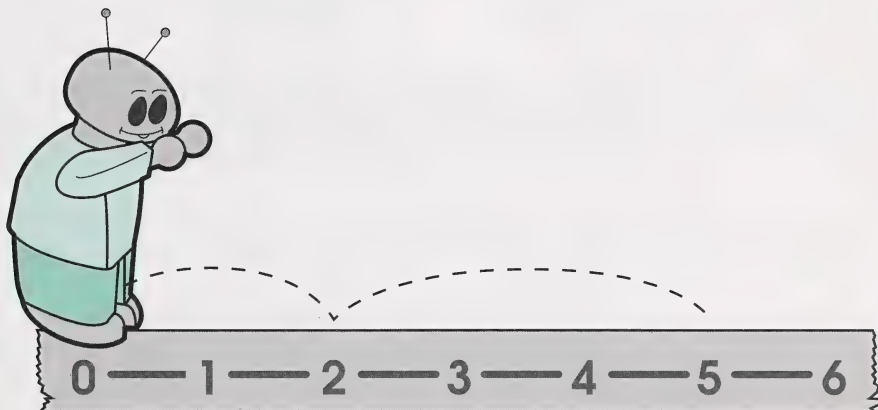
Note: You may have done this same activity as an optional Enrichment activity during Module 2, Day 11.

Attach a piece of wide masking tape to a convenient place on the floor.

Have the student help you evenly mark out the numbers zero to six on the tape.

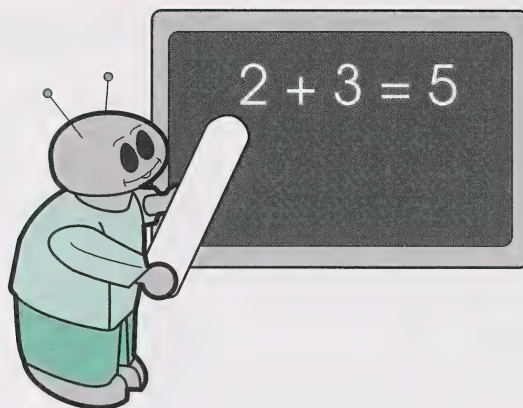


Ask the student to stand at the zero spot on the **number line** and make number sentences, based on your directions. For example, you could have the student hop two spaces forward and then another three spaces forward.

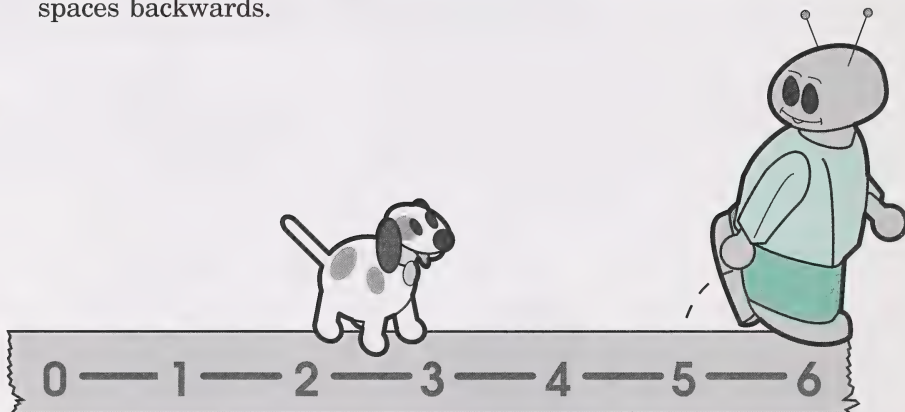


Have the student then tell you the number sentence that was acted out and print it on a chalkboard or piece of paper. In the example, the number sentence would be

$$\begin{array}{r} 2 \\ +3 \\ \hline 5 \end{array} \text{ or } 2 + 3 = 5.$$

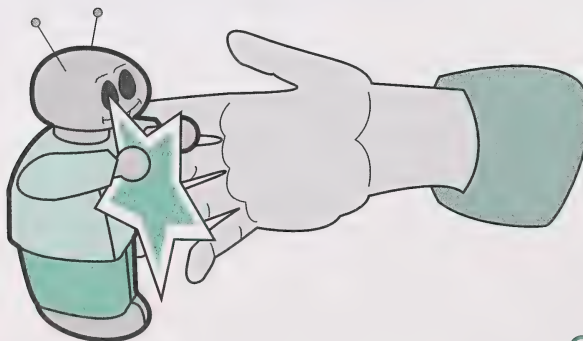


To do a subtraction sentence, the student could start at the number six or another number and be directed to move a specific number of spaces backwards.



Take turns giving directions and moving on the number line until the student has practised sums and differences to five.

Consider giving the student a pat on the back, a star, a stamp, or a sticker when the activity has been completed with care and effort.



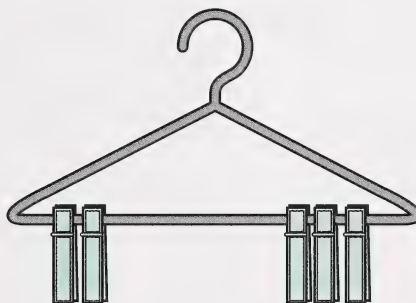
Enrichment (optional)

1. Clothespin Addition and Subtraction

Gather the following materials:

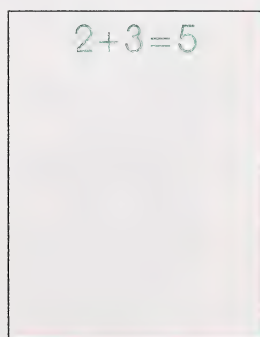
- one clothes hanger
- ten clothespins
- an unlined sheet of paper
- a pencil

Step 1: Place two clothespins on the left side of the hanger and three on the right.

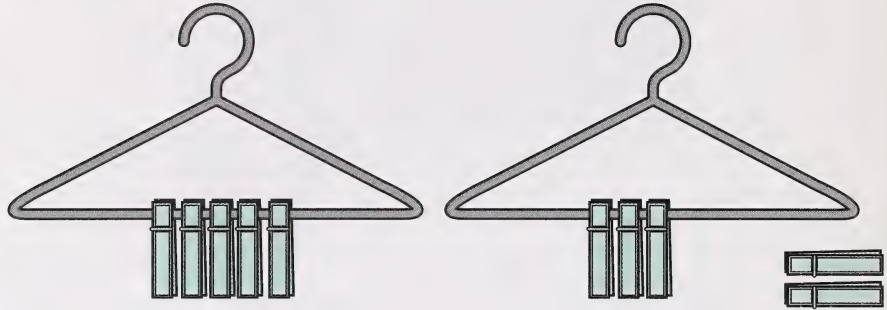


Step 2: Ask the student to tell you the **first half** of the number sentence for the clothespins on the hanger. The student should answer $2 + 3$.

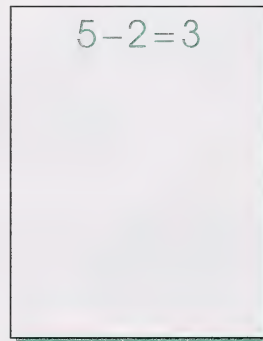
Step 3: Push the clothespins together, and have the student say the **whole number sentence** and then print it. The student should say and print $2 + 3 = 5$.



Step 4: For a subtraction number sentence, put some clothespins in the **middle** of the hanger, and have the student take a certain number away.



Step 5: Ask the student to tell you the first half of the subtraction number sentence. Then have the student say and print the whole number sentence.



Step 6: Take turns placing clothespins on the hanger and telling and printing the number sentences until the student has practised a variety of number sentences.

Keep the hanger and clothespins for future use.

2. Act Out a Play

Gather the following materials:

- five toy animal counters
- a toy wand or something that would serve as one
- unlined loose-leaf paper
- a pencil

Instruct the student as follows.

You can act out a play with your toy friends and wand.

Then you can think of a subtraction number sentence about your play.

I will tell the story, and you act out the play.

Once upon a time, on a moonlit night, there were 5 animal friends dancing in the forest.

With a touch of your wand, you put 3 of your animal friends to sleep.

How many friends are left dancing? (2)

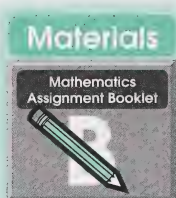
Print a number sentence that matches what happened in your play.

Guide the student to print the number sentence $5 - 3 = 2$ and then read the number sentence aloud. Take turns using the **play introduction** to create at least five new number plays. Following is another example.

Once upon a time, on a moonlit night, there were 3 frogs sitting by the side of the pond.

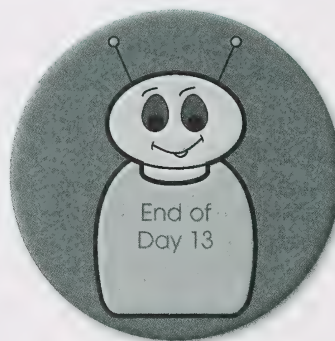
With a touch of my wand, I turned 1 frog into a prince. How many frogs are left?





Turn to Mathematics Assignment Booklet 2B, and follow the directions to do Day 13: Assignment 1.

Next, follow the directions to do Day 13: Assignment 2.



Day 14



Calendar Time

Time recommended: 10 minutes

Proceed with Calendar Time activities as usual.

Focus for Today

Time recommended: 45 minutes

- reviewing differences to five



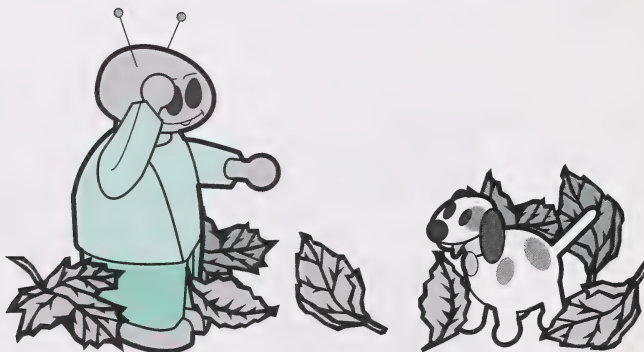
Vocabulary (spoken only)

autumn
large
first half
whole number sentence

before
after
fold

Materials Required

- materials from the master list
- approximately 20 leaves, either real or made from construction paper
- timer that measures in seconds (optional)
- subtraction number-sentence cards from Day 12 (optional)
- pennies (optional)
- containers labelled **I know** and **practice** (optional)



Activities

Investigating Tip



Today, the student will continue to review subtraction facts. It is important to have a thorough understanding of what subtraction means and how it is a part of our everyday lives.



Developing the Concept

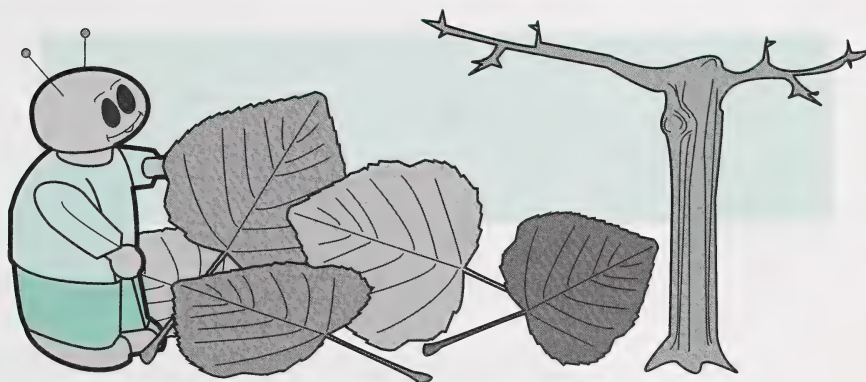
Go on a short nature walk with your student to gather fallen leaves. If **autumn** leaves are not available, make leaves from construction paper.

Lay the leaves on a table. On unlined paper, have the student draw a **large** tree with large branches.

Instruct the child as follows.

In the **autumn**, the leaves fall off the trees.

Place 5 leaves on your tree.



Pretend that a wind comes up and blows 2 leaves off your tree.

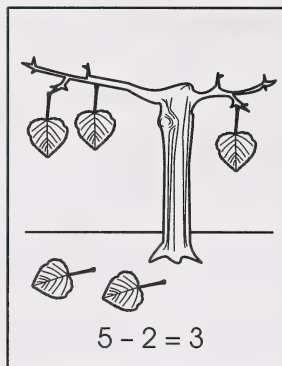
Show that 2 leaves have blown off the tree.

If the student has difficulty, suggest taking two leaves off the tree and placing them at the bottom of the page.

How many leaves are left on the tree?

Print a number sentence that tells what happened.

Guide the student to print the number sentence $5 - 2 = 3$ at the bottom of the page.



Applying the Concept

Record the following subtraction number stories on sheets of construction paper. This time, have the student glue leaves onto the tree shapes to show the number sentences. Display them on a bulletin board or other convenient spot.

$$2 - 0 = 2$$

$$3 - 0 = 3$$

$$4 - 1 = 3$$

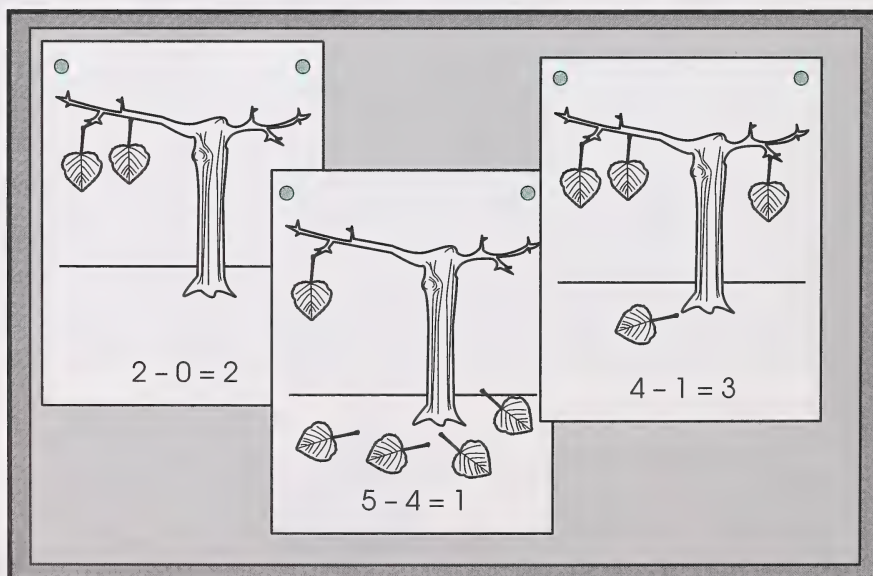
$$4 - 3 = 1$$

$$5 - 3 = 2$$

$$5 - 4 = 1$$

$$4 - 2 = 2$$

$$5 - 1 = 4$$



Enrichment (optional)

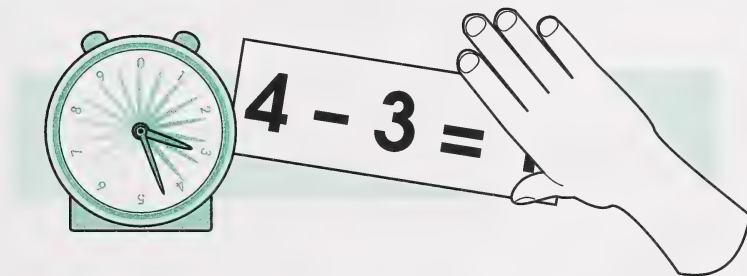
1. Five-Minute Practice

Gather the following materials:

- a timer, for example, a watch or digital stove timer
- subtraction number-sentence cards
- pennies (optional)
- containers labelled **I know** and **practice**

Step 1: Place the subtraction number-sentence cards and the **I know** and **practice** containers in front of the student. Set the timer for five minutes.

Step 2: With the answer hidden, flash a subtraction number card in front of the student.



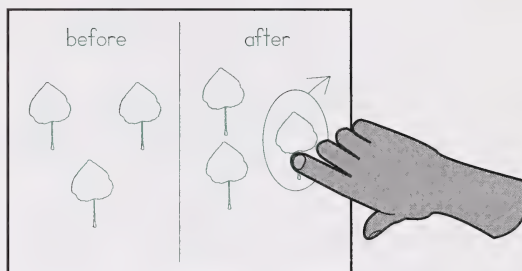
Step 3: Have the student read the **first half** of the subtraction number sentence aloud. Then give one minute to say the **whole number sentence**. For example, the student might say, “ $4 - 3 = 1$.” If the student is not able to give the correct answer, use counters to show the number sentence. To add interest, you could give the student a penny for each correct answer.

Step 4: Place the cards for number sentences that the student knows in the container labelled **I know**. Place other cards in the container labelled **practice**.

Save the subtraction number-sentence cards, pennies, and labelled containers for future use.

2. Before-and-After Subtraction Stories

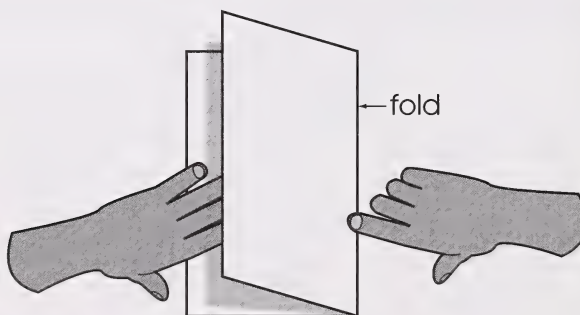
In this activity, the student will draw **before** and **after** pictures. In the examples below, the before picture shows that there are three leaves. The after picture shows that one leaf is being **taken away**, and the remaining set has two members. The student can easily identify the **original set** and the **set** that is being taken away.



Gather the following materials:

- unlined loose-leaf paper
- a pencil
- crayons

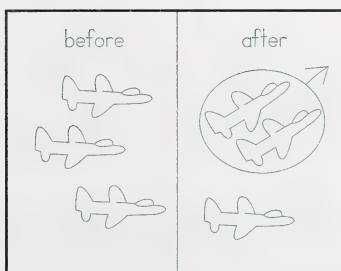
Step 1: Help the student **fold** an unlined piece of paper in half.



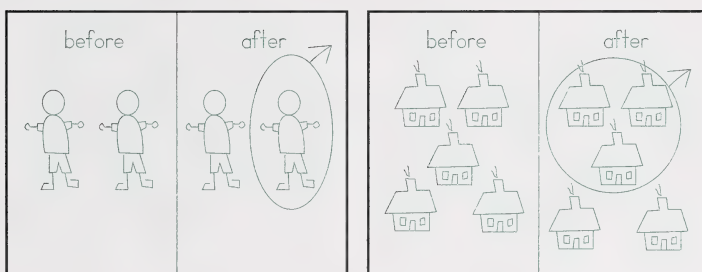
Step 2: On the top left-hand side of the page, print the word **before**. On the top of the right-hand side, print the word **after**.



Step 3: Ask the student to draw and colour a before-and-after subtraction number story.

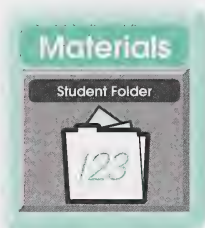
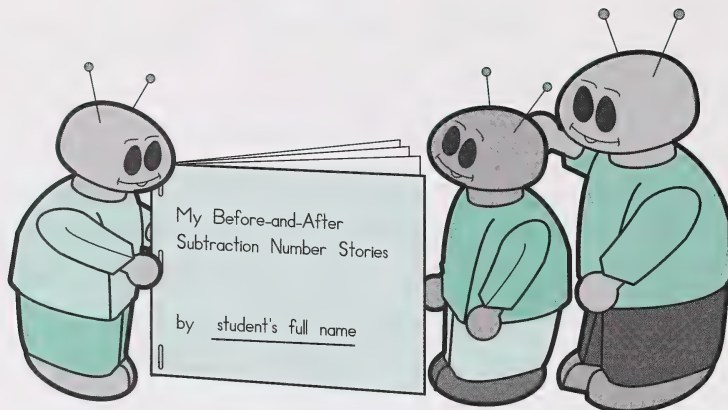


Step 4: Ask the student to follow the same procedure with two more before-and-after subtraction number stories.

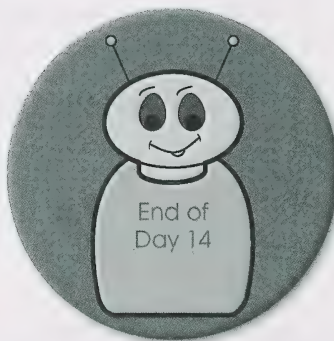


Step 5: Have the student make back and front cover pages. Place them with the subtraction number stories. Staple the left-hand side together to make a booklet.

Step 6: Have the student read the booklet to family and friends.



Step 7: If your student makes the subtraction number booklet, you could submit it to the teacher. If you decide to do this, have the student print the module and day numbers, M2D14, on the back of the booklet. Then place the booklet in the Student Folder.



Day 15



Calendar Time

Time recommended: 10 minutes

Proceed with Calendar Time activities as usual.

Focus for Today

Time recommended: 45 minutes

- subtracting, using vertical and horizontal number sentences
- reviewing differences to five



Vocabulary (spoken only)

vertical
up
down
subtraction
horizontal

straight across
train
line
tower
long

larger
sections
narrow strips
stacking

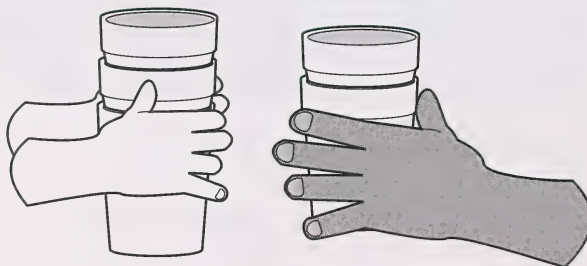
Materials Required

- materials on the master list
- interlocking blocks or regular blocks
- egg cartons
- five items to serve as eggs, for example, candy eggs, toy eggs, small blocks, or beads
- zero to five number cards
- blank index cards cut in half to make cards that say -0 , -1 , -2 , -3 , and -4
- food items (optional)
- adding-machine paper (optional)
- paper or plastic stacking cups (optional)

Activities



Today, you will introduce the student to the **vertical**, or **up-and-down**, form of **subtraction**. Previously, the student has done only **horizontal**, or **straight-across**, subtraction number sentences.



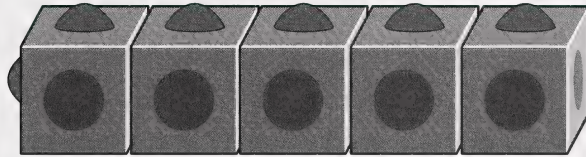


Developing the Concept

Place five interlocking blocks, a pencil, and some unlined paper in front of the student. Instruct as follows.



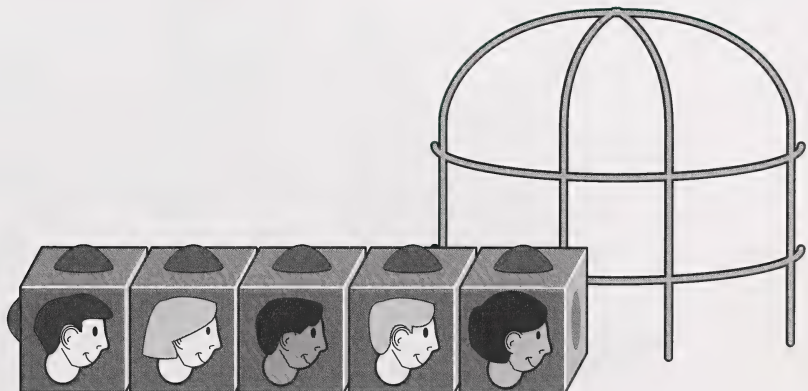
Place your blocks together to make a **train**.



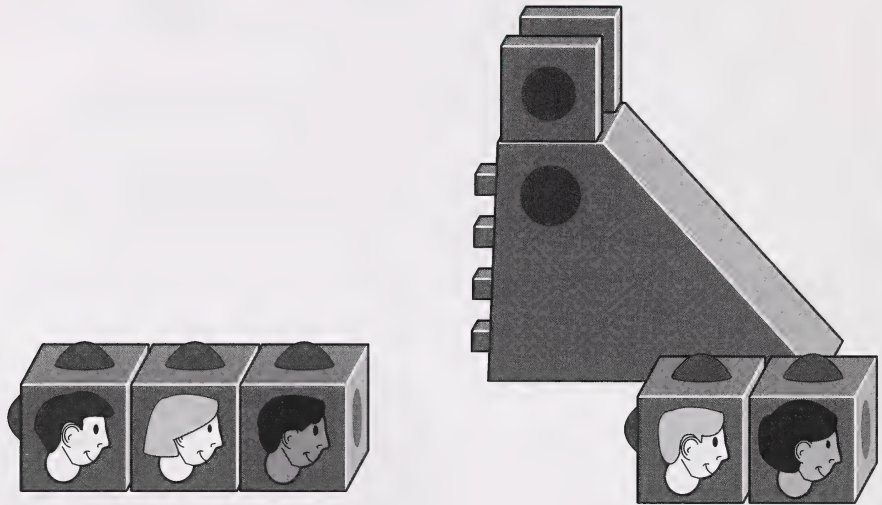
You have made a train with your blocks.

You put your blocks in a **horizontal**, or **straight-across**, position.

Pretend these 5 blocks are 5 children waiting in **line** for the monkey bars.



Two children leave to go on the slide. Snap off two blocks.



How many children are left in the **line**? (3)

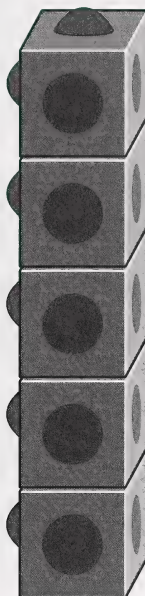


Print the number sentence that tells this story.
(5 - 2 = 3)

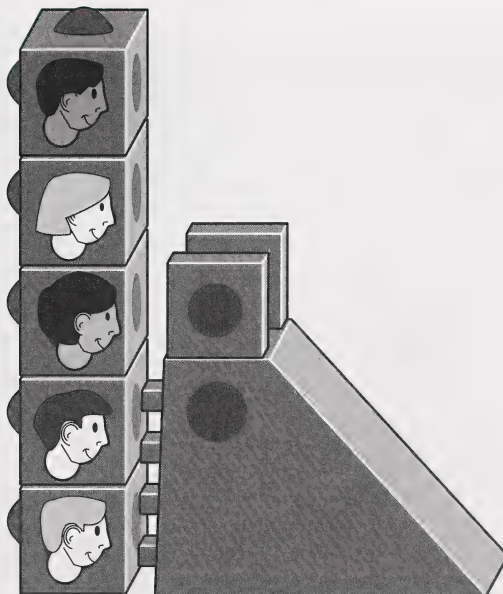
Have the student snap the five blocks together and hold them in a vertical, or up-and-down, position. Continue the script.

You have made a **tower** with your blocks.

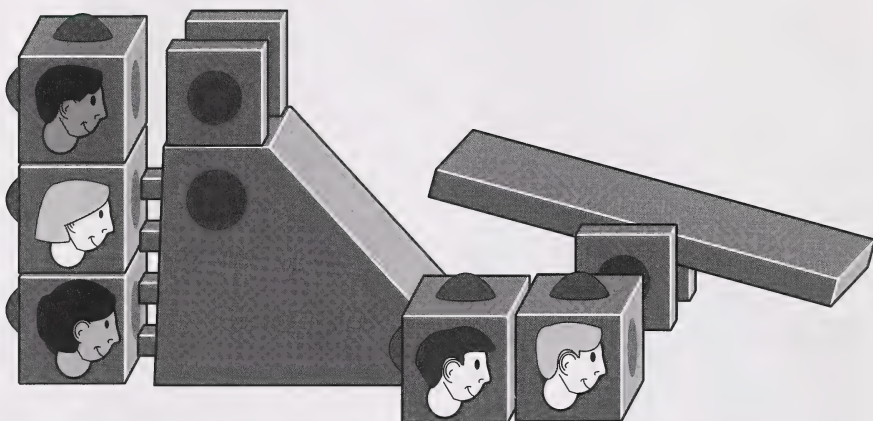
You put your blocks in a **vertical**, or **up-and-down**, position.



Pretend again that the 5 blocks are children.
This time, all 5 children are waiting for the slide.



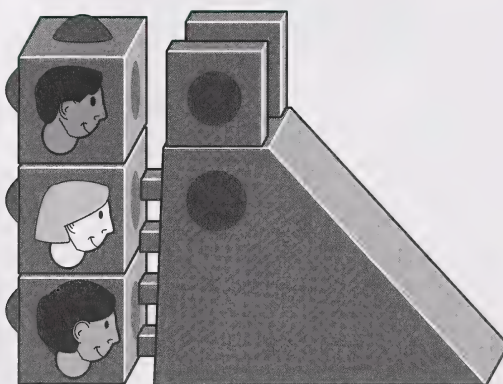
The 2 children at the **bottom** think the line-up is too **long**. They go to the **seesaw**. Snap off two blocks from the bottom.



How many children were at the slide? (5)

How many children went to the seesaw? (2)

How many children are left at the slide? (3)



Print the number sentence that tells this story.
(5-3=2)

Have the student print the number sentence in the horizontal form, and then you print it in the vertical form. Continue the script.

You have been printing your subtraction number sentences **straight across**.

Another way to say **straight across** is to use the word **horizontal**.

You could also print your number sentence in an **up-and-down** form. Point out where you have printed this.

Another way to say **up** and **down** is to use the word **vertical**.

The **vertical** form of a number sentence makes it easier to subtract, especially when you work with **larger** numbers.

Use the interlocking blocks to take turns showing other number stories. After each one, print a matching number sentence in the vertical form.



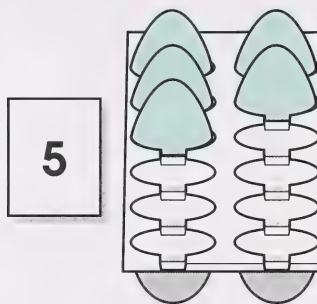
Applying the Concept

Egg-Carton Subtraction

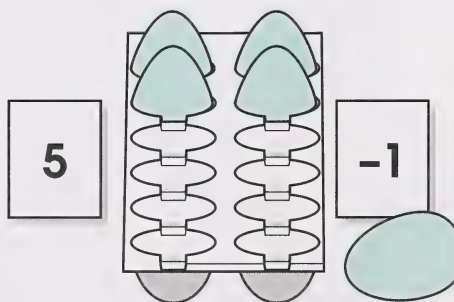
Provide the student with the following materials:

- an egg carton
- five items to serve as eggs
- zero to five number cards
- a set of cards labelled -0 , -1 , -2 , -3 , -4 , and -5

Step 1: Have the student draw a card from the first set and place that many eggs in the egg cups.



Step 2: Have the student draw a card from the second set, take that many eggs out of the carton, and then describe the subtraction situation. Help the student discover that some numbers cannot be subtracted from other numbers.



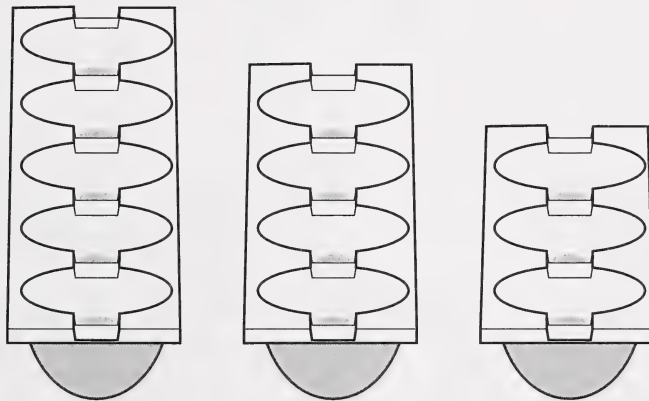
Step 3: Take turns choosing cards from the first and second sets until all the possible number sentences have been shown.

Enrichment (optional)

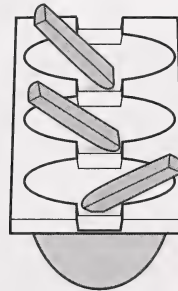
1. Snack Time

Gather the following materials:

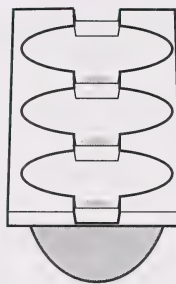
- egg cartons cut into three, four, and five **sections**
- small fruit or vegetable items
- adding-machine tape or unlined paper cut into **narrow strips**



Step 1: Have the student place food items in one of the egg-carton sections.



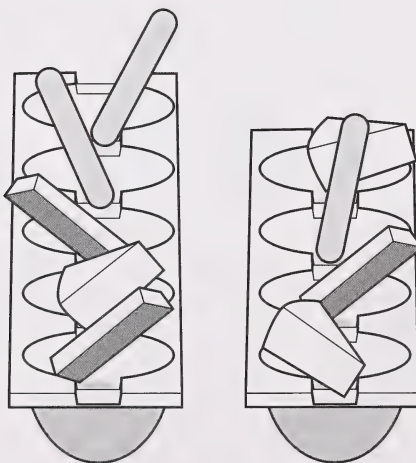
Step 2: Have the student choose a number of items to eat from the egg carton. For example, from a three-sectioned egg carton, the child could choose to eat all three items.



Step 3: Give adding-machine tape or a narrow strip of unlined paper for the student to print a vertical number sentence that matches what has happened. In the previous example, the student would print the following.

$$\begin{array}{r} 3 \\ - 3 \\ \hline 0 \end{array}$$

Step 4: Take turns filling an egg-carton section and eating a chosen number of items until the student has practised a variety of vertical number sentences. Keep the egg-carton sections for future use.



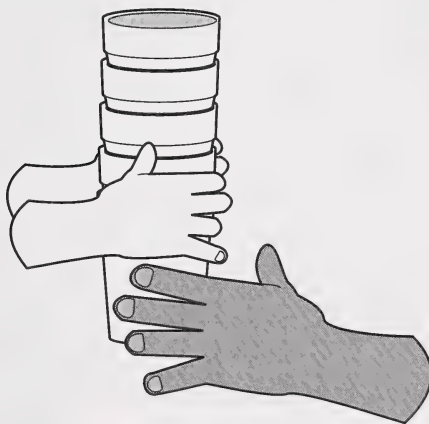
2. Cup-Dispenser Subtraction

For this activity, the student will need paper or plastic **stacking** cups.

Step 1: Ask the student to stack five stacking cups.

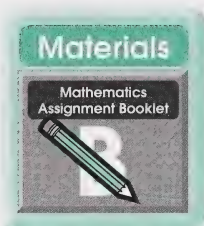
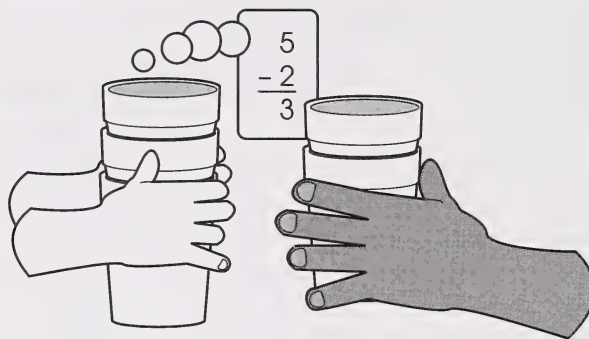


Step 2: Have the student hold the stacking cups and pretend to be a cup dispenser. You remove a number of cups from the bottom of the stack.



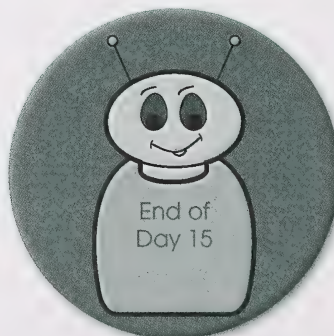
Step 3: Ask the student to say aloud a number sentence that matches what has happened. For example, two cups may have been taken from the bottom of the stack. The number sentence that the student should say would be $5 - 2 = 3$.

Step 4: Take turns constructing the number sentence and saying it aloud until the student has practised a variety of subtraction sentences. Keep the paper or plastic stacking cups for future use.



Turn to Mathematics Assignment Booklet 2B, and follow the directions to do the assignment for Day 15.

Then complete Day 15: Learning Log. Under Student's Thoughts, print a sentence or two telling what the student thinks about this day's mathematics learning. For example, is it easy to subtract using the vertical form of a number sentence?



Day 16



Calendar Time

Time recommended: 10 minutes

Proceed with Calendar Time activities as usual.

Focus for Today

Time recommended: 45 minutes

- reviewing sums and differences to five



Vocabulary (spoken only)

equal
value
addition
subtraction
vertical
horizontal
plus

take away
operation
more than
name
other names
numbers

another name
shapes
flap
one half
counting forward
counting backward

Materials Required

- materials on the master list
- collection of counters



Activities

Teaching Tip



Today, observe whether your student understands number stories and number sentences. Is the student able to do the following?

- realize that the term **equal** means the same in **value**
- recognize that an **addition** or **subtraction** story can be represented in a **vertical** or **horizontal** form
- use the terms **plus** and **take away** for the appropriate **operations**

Comment on your observations later in Day 16: Learning Log.



Developing the Concept

Use the following script to guide your instruction.



People can have **more than 1 name**.

What are some of your **other names**? Discuss how a person could be called a mother, a wife, a sister, a daughter, an aunt, a niece, or a friend.

Numbers can have more than 1 name, too.

Another name for the number **3** is **4-1**.

Think of some **other names** for the number **3**.

Begin by printing the number **3** at the **top** of a piece of paper.

Below the number **3**, print **4-1**.



Below **4-1**, print other names for the number **3**.



The student can print addition as well as subtraction names.

$$\begin{array}{c} 3 \\ 4-1 \\ 2+1 \\ 3-1 \\ 1+2 \end{array}$$

Applying the Concept

Number Names Booklet

Take out four other pieces of unlined paper. At the top of each, print one of these numbers: 1, 2, 4, and 5.

On the appropriate sheet of paper, have the student print **other names** for the numbers **1, 2, 4, and 5**.

$$\begin{array}{c} 1 \\ 1+0 \\ 2-1 \end{array}$$

$$\begin{array}{c} 2 \\ 1+1 \\ 2-0 \\ 4-2 \end{array}$$

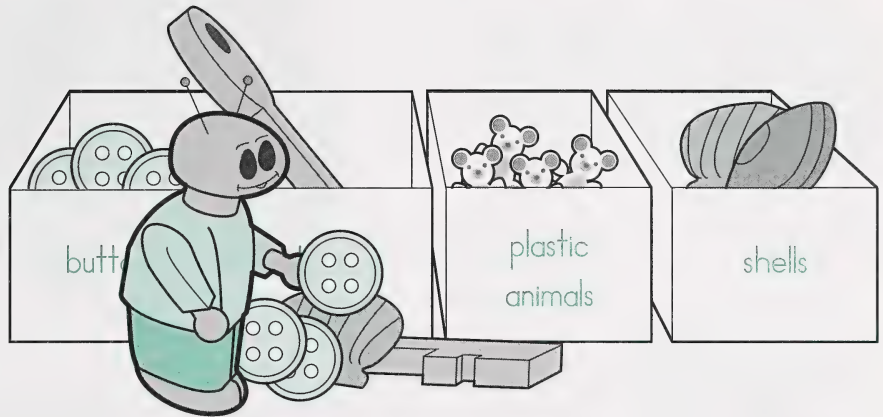
$$\begin{array}{c} 4 \\ 4-0 \\ 3+1 \\ 2+2 \end{array}$$

Again, the student can print addition and subtraction names.

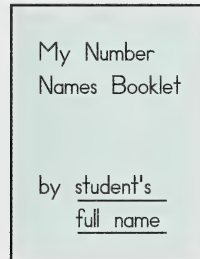


$$1+4$$

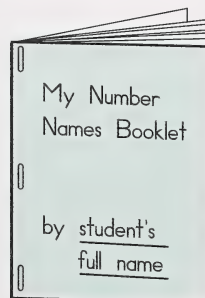
Monitor progress to see that the student is doing the activity correctly. The child may find it helpful to use counters. Help if necessary.



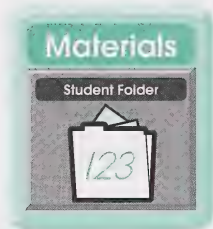
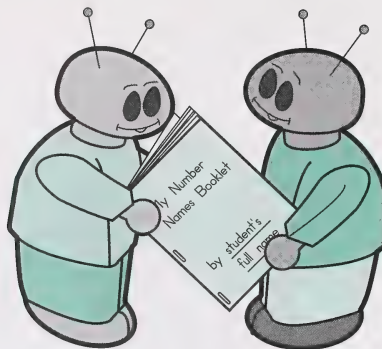
Have the student place the pages in order and make a cover page similar to the one shown below.



Place the cover page on top of the number pages. Add a back page. Staple all together to make a booklet.



Have your student share the booklet with family and friends.



Ask the student to print the abbreviated form of the module and day numbers, M2D16, on the back of the booklet. Place the booklet in the Student Folder.



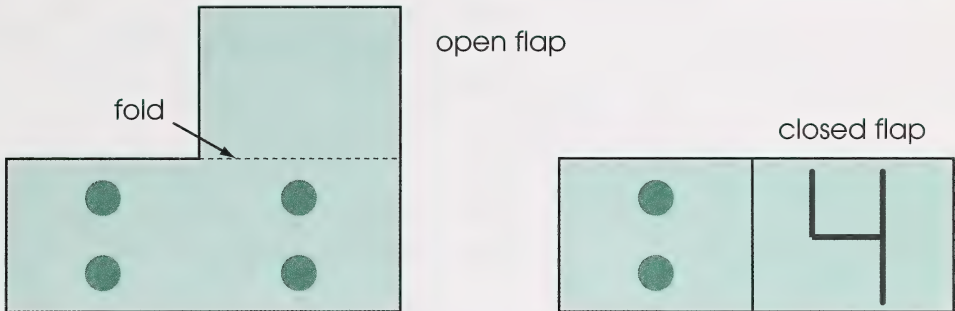
Enrichment (optional)

Cover-Ups

Gather the following materials:

- construction paper
- safety scissors
- felt markers
- strips of unlined paper

Step 1: Help the student make cover-up booklets, similar to the one that follows. You could make **shapes** other than dots. Use the **flap** to cover **one half** of the shapes.



Step 2: With the flap closed, hold a cover-up booklet in front of the student. Tell a number story, using the shapes as characters. For example, there were 4 cookies on the plate when I went outside. When I came back in, there were only 2 cookies left. How many cookies are missing?

Step 3: Ask what information the student knows and what the student is trying to find out. On a strip of unlined paper, help print a **missing-part sentence** for the cover-up booklet. The missing-part sentence could be as follows.

2 plus ____ equals 4

Step 4: Ask the student how to find the number of covered shapes. The child might suggest **counting forward** from the visible number of shapes or **counting backward** from the total number. Help to print a take-away sentence similar to the following.

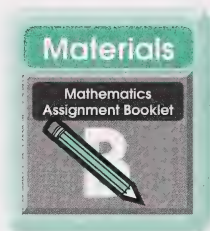
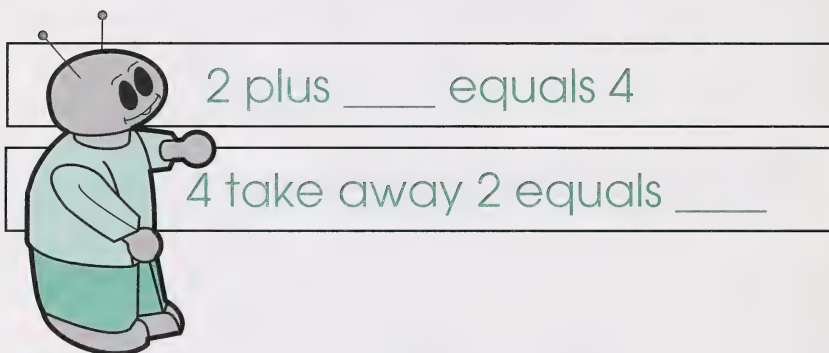
4 take away 2 equals ____

Step 5: Ask the following questions about the missing-part sentence and the take-away sentence:

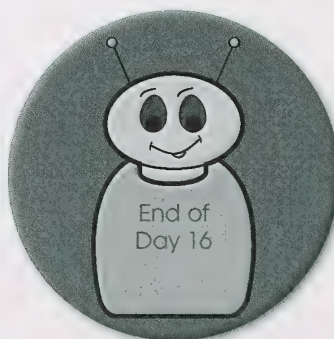
- What is the same about the two sentences? (The numbers two and four are used. The word **equals** is used.)

- How are the sentences different? (The first sentence is about an addition situation. The second sentence is about a subtraction situation.)
- What number tells how many shapes in all? (4)
- What number tells how many in each half of the number sentence? (2)

Step 6: Repeat steps 1 to 5 with three or four other cover-up booklets.



Turn to Mathematics Assignment Booklet 2B, and follow the directions to do the assignment for Day 16.



Day 17



Calendar Time

Time recommended: 10 minutes

Proceed with Calendar Time activities as usual.

Focus for Today

Time recommended: 45 minutes

- problem solving: **predict-and-check** strategy
- introducing mazes



Vocabulary (spoken only)

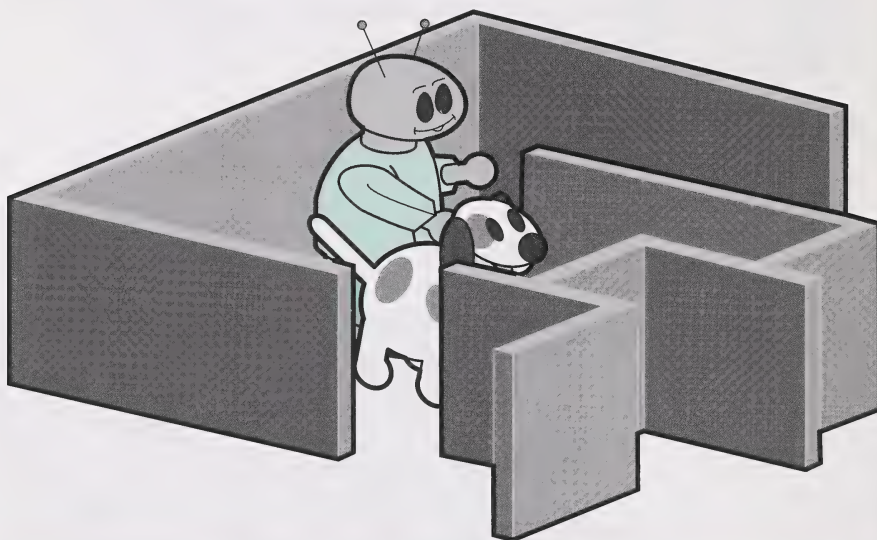
problem solving
strategy
predict and check
path
route

maze
way
alternative
predict/prediction
check

second
navigating/navigator
starting point
ending point

Materials Required

- materials on the master list
- household items of your choice, to make a maze
- small snack, sticker, or other item to end the maze
- small blocks or wooden craft sticks (optional)
- small toy animals (optional)
- maze activity books (optional)



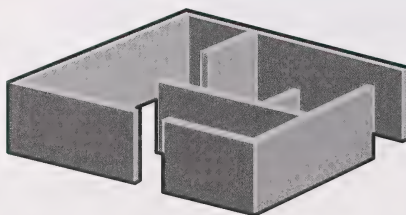
Activities

Teaching Tip



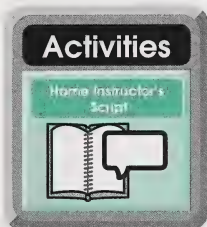
The main focus of this Grade One Mathematics program is **problem solving**. Through it, mathematical concepts and skills are learned.

Instruction in **problem-solving strategies** will develop a resource the student can use for problem solving. Today, you will introduce the strategy of **predict and check**.



Developing the Concept

Encourage the student to talk about **paths** or **routes**, such as the path to a friend's or neighbour's house, to the store, or to a playground. Use the following script.



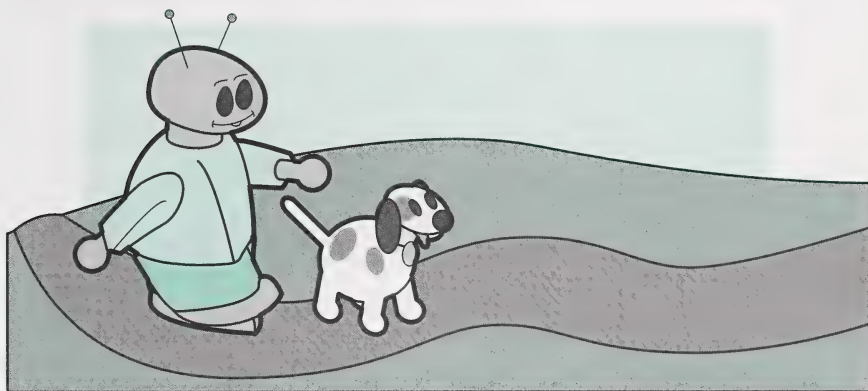
Name your favourite place to go.

If necessary, guide the student by asking a few questions.

Is your favourite place a playground? a friend's house? an amusement park? a lake?

How do you get to your favourite place?

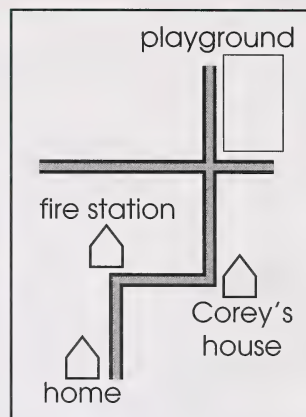
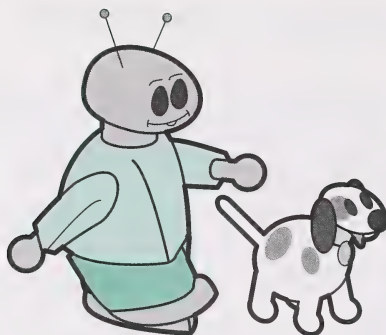
How do you know what **path** or **route** to follow?



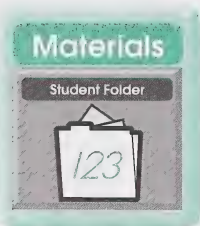
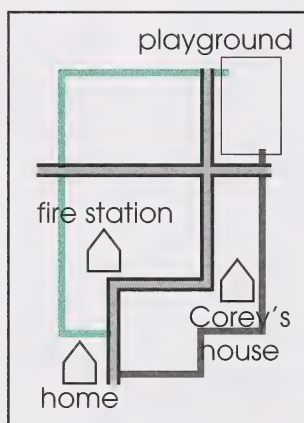
Give the student an unlined sheet of paper. Help draw the route from home to a favourite spot.

First, have the student draw home and then roadways and familiar landmarks on the **way** to the favourite place. For example, the child's favourite spot might be a playground or swimming pool.





After the most familiar route has been drawn, talk about some **alternative** routes. Use a different-coloured pencil or crayon to draw some other routes. The student could entitle the page Routes to My Favourite Spot.

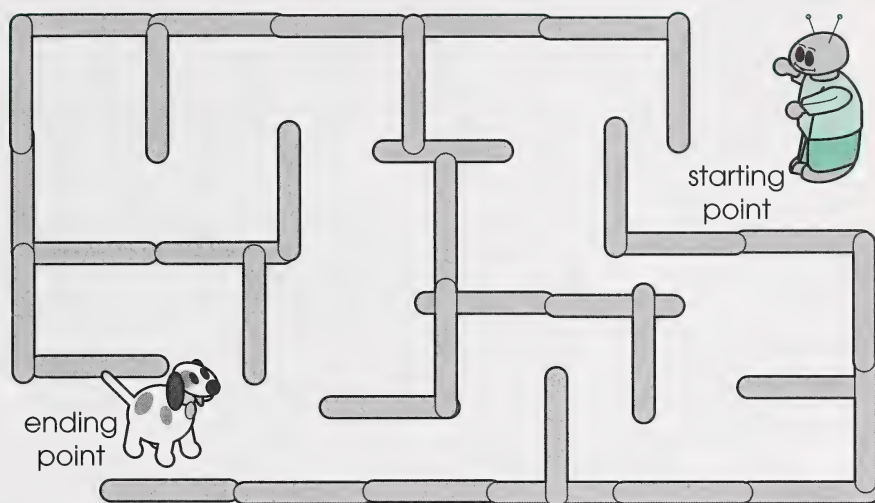


Have the student's full name and the abbreviated form of the module and day numbers, M2D17, printed on the back of the page. Then place it in the Student Folder.

Applying the Concept

Set up a **maze** for the student to go through to reach a treasure. Use furniture items, such as tables and chairs, or simpler items, such as sticks. The maze should have more than two paths in it, but only one or two paths should lead to the treasure. The treasure can be whatever you think is appropriate, such as a snack or a sticker.

Below is an example of a maze.



Proceed with the following script.

Here is a **maze**.

From the **starting point**, which way do you **predict** you should go to get to the treasure?

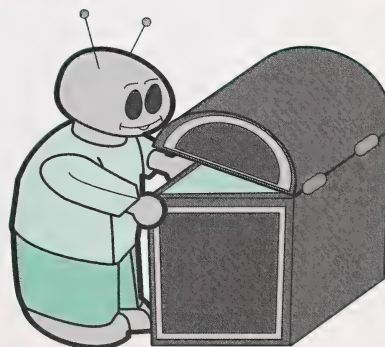
Check your **prediction**.

Did it work?

Is there another possible **way** you could go?

Check your **second prediction**.

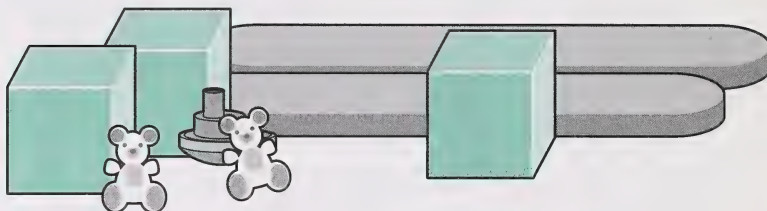
Did it work?



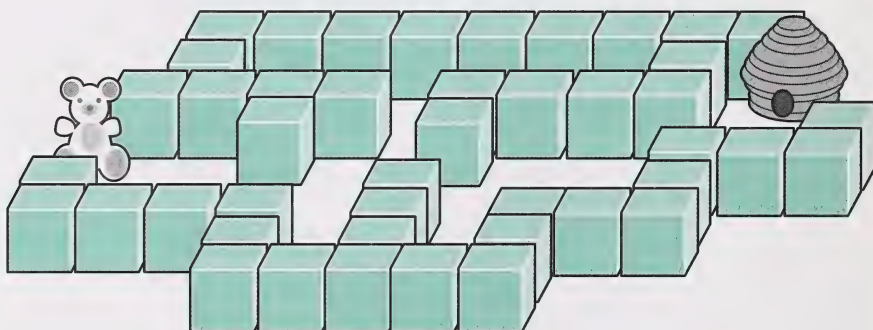
Enrichment (optional)

1. Construct a Maze

Step 1: Provide the student with small blocks or wooden craft sticks and some small toy animals.



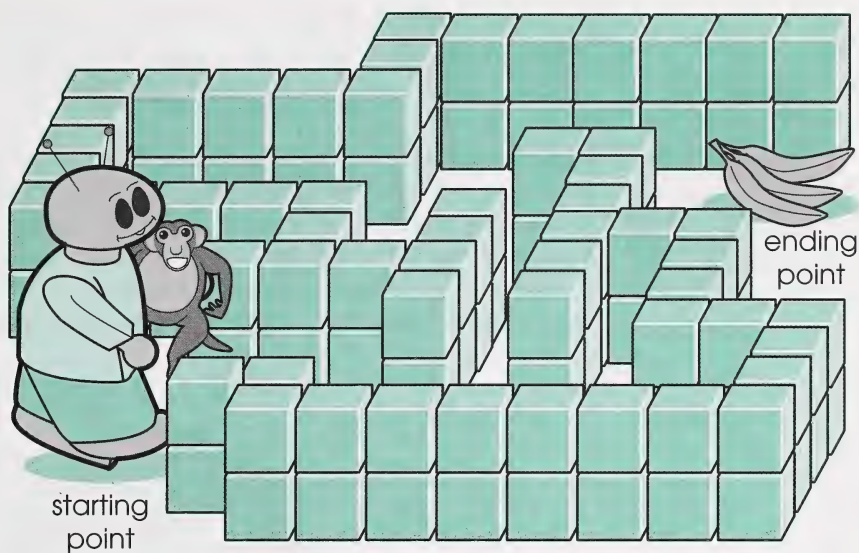
Step 2: Explain that the blocks or sticks are to show the sides of a path, and have the student construct a maze. Help as needed.



Step 3: Have the student challenge a family member or friend to find the way through the maze. The person **navigating** the maze could use a toy animal to act out a story. For example, the **navigator** could pretend that a toy bear is trying to find its way through the forest to a beehive.

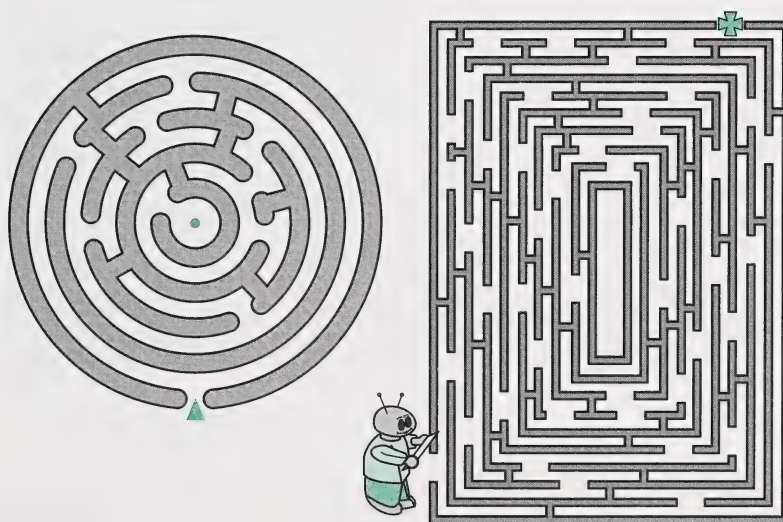
Be sure to have the student clearly indicate where the **starting** and **ending points** are.

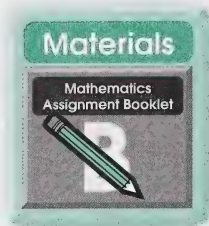
Step 4: Encourage others to create mazes for your student to navigate.



2. Activity-Book Mazes

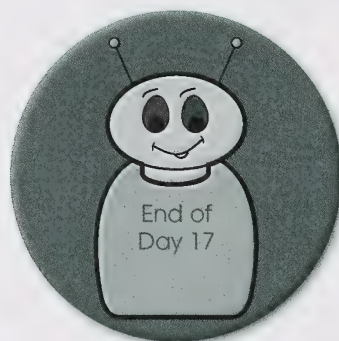
For this activity, you will need commercial maze activity books. Provide mazes that vary in degrees of difficulty. Have the student begin with easier mazes and gradually work up to more difficult ones.





Turn to Mathematics Assignment Booklet 2B, and follow the directions to do the assignment for Day 17.

Complete Day 17: Learning Log. Under Student's Thoughts, print a sentence or two telling what the student thinks about this day's mathematics learning. For example, what does the student think about the ability to use the predict-and-check strategy to navigate through a maze?



Day 18



Calendar Time

Time recommended: 10 minutes

Proceed with Calendar Time activities as usual.

Focus for Today

Time recommended: 45 minutes

- reviewing sums and differences to five



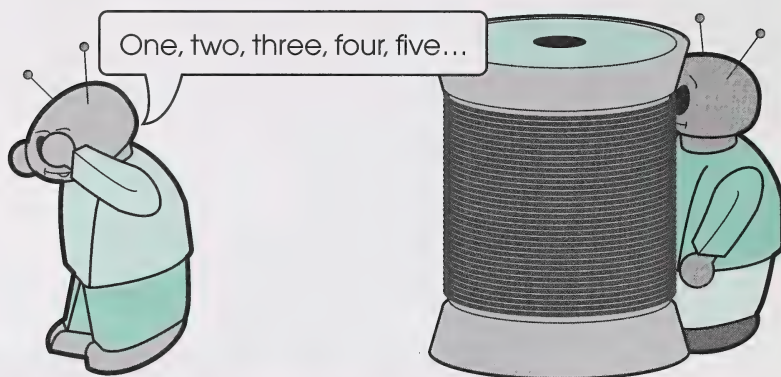
Vocabulary (spoken only)

patterns
models
properties
sums

equal
operations
inversely related
review

Materials Required

- materials on the master list
- items according to the games or activities you choose in Developing the Concept



Activities

Teaching Tip



Today, the student will review and practise basic addition and subtraction facts to five.

Once again, observe whether your student has the following addition and subtraction skills, and comment on your observations later in Day 18: Learning Log.

- relates personal life experiences and language to addition and subtraction operations
- relates addition and subtraction operations to life experiences
- recognizes number-sentence **patterns**, such as those shown below

$$2 + 2 = 4$$

$$2 + 3 = 5$$

$$2 + 4 = 6$$

- understands the results of an operation

Continued ...

- recognizes the relationship between **operations**

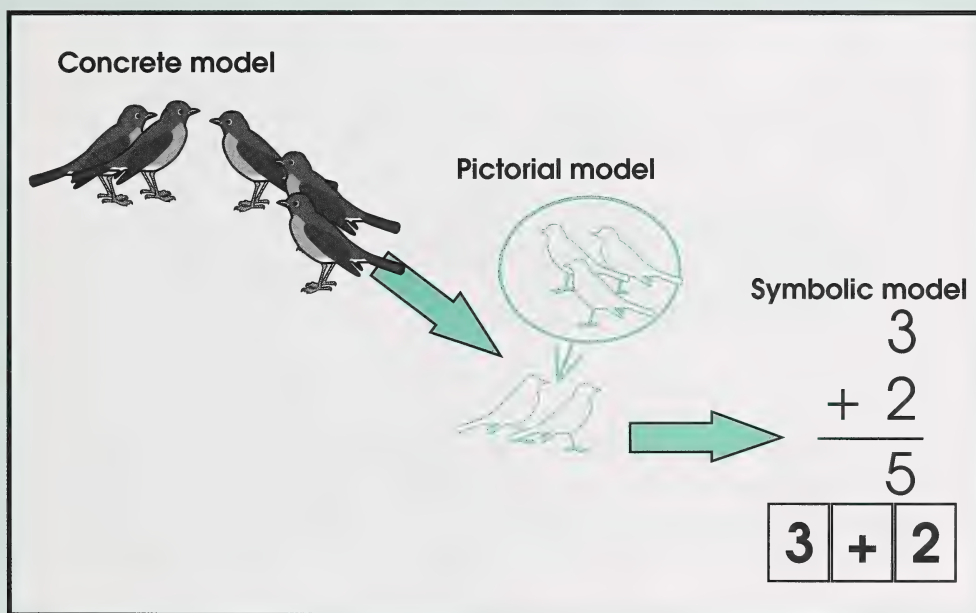
Addition and subtraction operations are **inversely related**. What one operation does, the other one undoes. An example follows.

$$2 + 3 = 5$$

$$5 - 3 = 2$$

- is aware of the **models** and **properties** of each operation

Models



Properties

For the addition number sentences below, both **sums** are the same, although the numbers have been switched around.

$$3 + 1 = 4$$

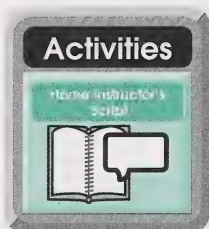
$$1 + 3 = 4$$

This property does not apply to subtraction.

For example, $3 - 1 = 2$, but $1 - 3$ does not equal 2.

Developing the Concept

Instruct as follows.



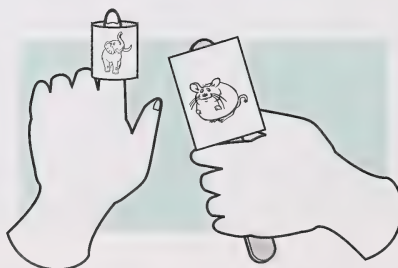
Today, you will **review** addition and subtraction number sentences that you have learned so far.

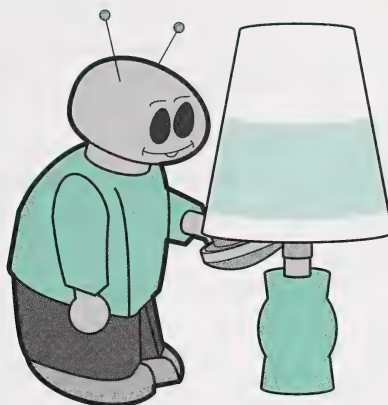
Choose a favourite game or activity that helped you learn addition and subtraction number sentences.



Gather materials for two or three of the following activities. Give the student a choice from these activities that you might have done during Module 2. Continue the activity until your student has practised a variety of addition and subtraction number sentences.

- Day 1 Number Play
- Day 2 What's in My Hand? (This was an optional activity.)
- Day 3 Spin the Wheel (This was an optional activity.)
- Day 11 Hide and Seek (This was an optional activity.)
- Day 12 Addition and Subtraction Card Game



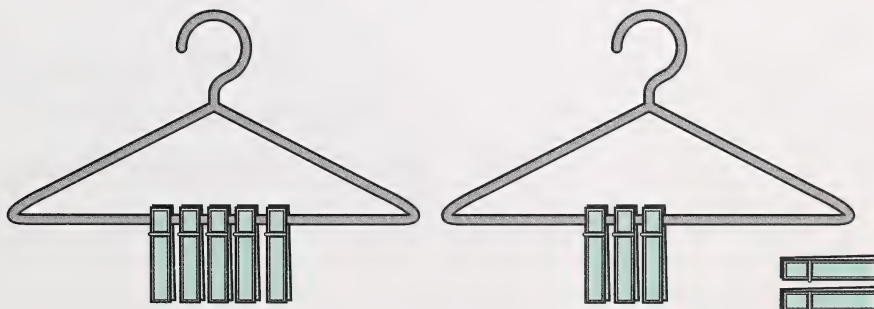


Applying the Concept

Give your student a choice from the following addition and subtraction activities from previous Module 2 Enrichment options:



- Day 4 More Trains and Towers
- Day 5 Make the Sum (also Make the Difference)
- Day 7 Counter Subtraction (or Addition)
- Day 13 Clothespin Addition and Subtraction
- Day 14 Before-and-After Subtraction Stories (or Addition Stories)



Day 18 • Mathematics

Materials

Mathematics
Assignment Booklet



Turn to Mathematics Assignment Booklet 2B, and follow the directions to do the assignment for Day 18.

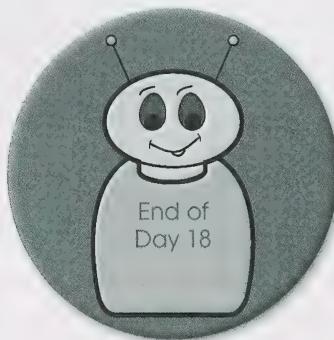
Then complete Day 18: Learning Log. Under Student's Thoughts, print a sentence or two telling what the student thinks about this day's mathematics learning, for example, about the ability to add and subtract to five.

Materials

Mathematics
Assignment Booklet



At the end of Mathematics Assignment Booklet 2B, follow the directions to complete Day 18, Student Folder Items. Gather the required materials from your Student Folder. Submit these items to your student's teacher for marking at the time the teacher has requested them.



Congratulations!
You have completed
Mathematics Module 2.

Credits

Some clip art drawings are commercially owned.

Page

1 PhotoDisc, Inc.	65 Alberta Distance Learning Centre	125 EyeWire, Inc.
6 compilation: Gazelle Technologies, Inc.	67 PhotoDisc, Inc.	132 PhotoDisc, Inc.
7 PhotoDisc, Inc.	77 Gazelle Technologies, Inc.	135 PhotoDisc, Inc.
21 PhotoDisc, Inc.	89 Corel Corporation	141 Adobe Systems Incorporated
23 Adobe Systems Incorporated	95 PhotoDisc, Inc.	142 Adobe Systems Incorporated
33 Adobe Systems Incorporated	100 Corel Corporation	153 Gazelle Technologies, Inc.
37 Corel Corporation	103 EyeWire, Inc.	154 PhotoDisc, Inc.
43 Adobe Systems Incorporated	105 Adobe Systems Incorporated	161 PhotoDisc, Inc.
44 PhotoDisc, Inc.	106 EyeWire, Inc.	167 EyeWire, Inc.
51 EyeWire, Inc.	115 PhotoDisc, Inc.	173 PhotoDisc, Inc.
61 Alberta Distance Learning Centre	118 Adobe Systems Incorporated	189 Gazelle Technologies, Inc.

